FEB 16 '35

The Executive PURCHASER

A NATIONAL PUBLICATION DEVOTED TO PURCHASING AS AN EXECUTIVE FUNCTION IN CORPORATION MANAGEMENT

DR. LEO WOLMAN—His elections brought light . . . *See page 16* *International*

Volume III • **FEBRUARY 1935** • **Number 2**

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A Liquid, Pore-Deep Metal Protector!

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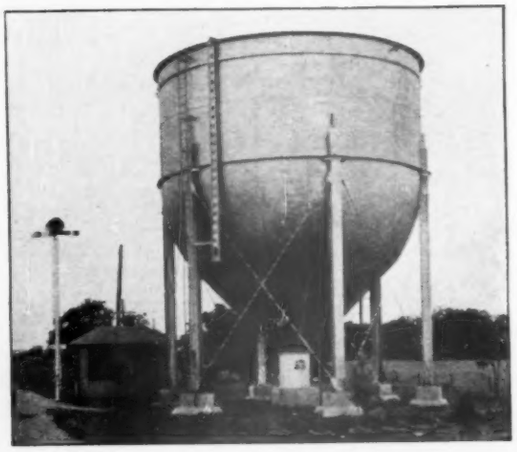
In Fact Any Metal Surface



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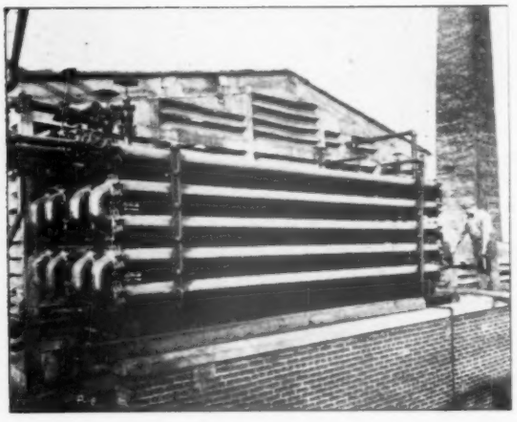

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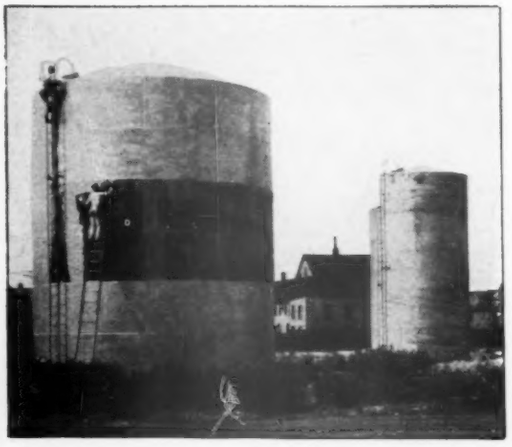

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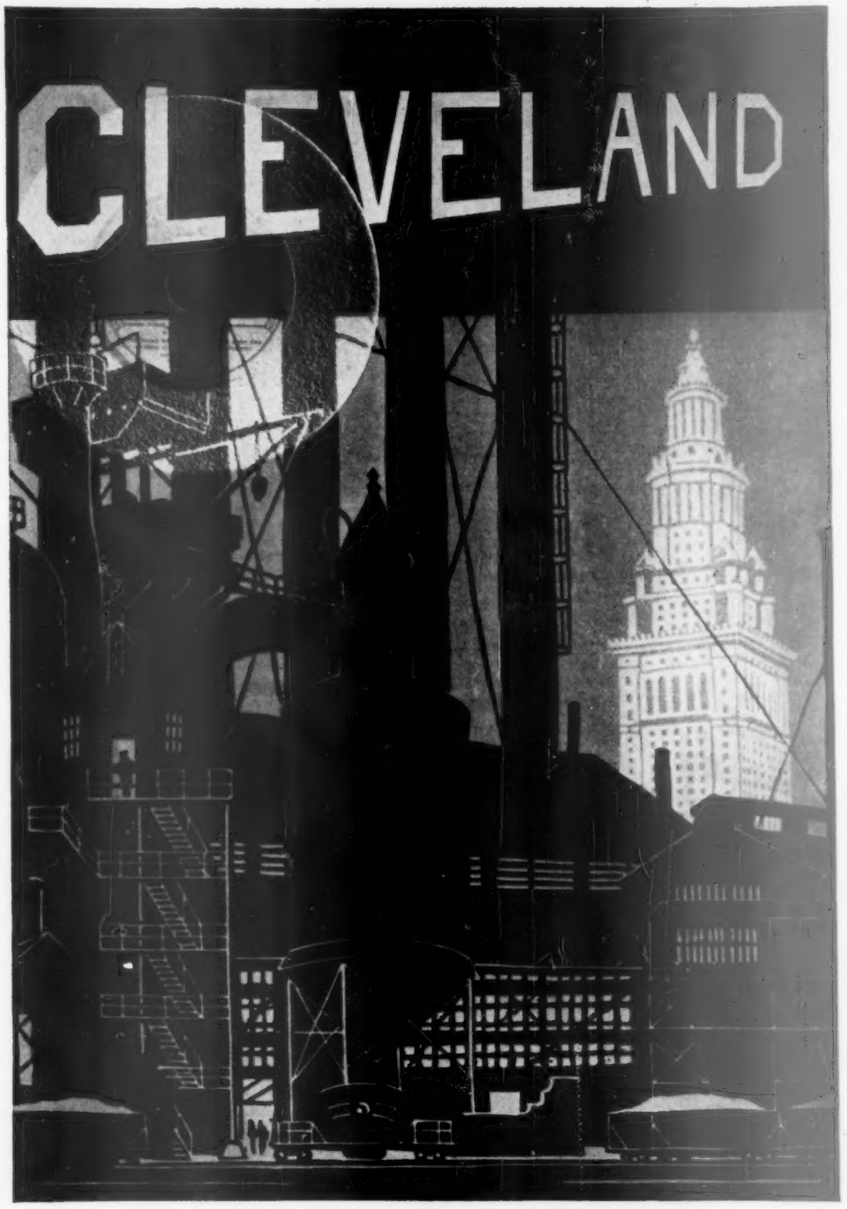

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F. O. B.

[Filosofy of Buying]

CIGARETTE advertising, to which we are indebted for many useful bits of information, tells us that "It's fun to be fooled, but it's more fun to know." Here's the germ of an idea for buying and selling. No more veiled hints about better quotations that don't exist in fact, and a reasonable deflation of extravagant claims of quality and performance. And what with our observance of the birthdays of "Honest Abe" and the man who couldn't tell a lie, February would be an appropriate month for launching the experiment. It's worth trying.

Δ Δ Δ

Says Hi-Pressure Pete: *Business must be getting better. A few months ago the buyers' theme song was "No, no, a thousand times no," but today there's an increasing number who are at least sufficiently interested in a quotation to whistle "You're the top."*

Δ Δ Δ

BEING still several years this side of 60, the thing that interests us about the Townsend Plan is the requirement that all this money has to be spent. That should mean some good jobs for qualified purchasers.

The N. A. P. A. Convention Committee is looking for a slogan to inspire a large attendance. May we suggest:

We'll be looking foria
At the Waldorf Astoria

Δ Δ Δ

PURCHASING men who are interested in achieving professional status for the buyer will find food for thought in the recent remarks of President J. Allen Johnson, of the American Institute of Electrical Engineers: "The present urge for the interpretation of professional standing in the sense of 'group prestige' is only a phase of the present fever for getting something for nothing. It will pass in due time and we shall rediscover that worth-while things are acquired only by effort. Individual professional standing depends on continuing education. No man who deserves to be called an engineer can possibly think of employment relationships in terms of collective bargaining. The whole idea of group or mass action in these relationships is, to my mind, repulsive to the whole concept of engineering as a profession."

The EXECUTIVE PURCHASER

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NRA CODE

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FEBRUARY 1935

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RYERSON

The Executive
PURCHASER

Vol. III February, 1935 No. 2

PERMANENT VALUES OF N. R. A.

THE National Industrial Recovery Act expires in four brief months. That places squarely before the Administration, and before the people through their representatives in Congress, the question of what form and scope shall be given to a continuation of such legislation.

It is unthinkable that this great project should be summarily abandoned, for it would be short-sighted indeed to stop with the amelioration of a critical condition without attempting at the same time to correct and organize business practice so as to prevent a recurrence of the situation. Industry and government are agreed on this point. New codes have been approved even within the past day or two, surely with no thought that a few weeks of code operation will suffice or even contribute materially to any real improvement.

But it is equally unthinkable that such important legislation should be complacently extended without taking into account the experience of a year and a half under the codes. Measures adapted to emergency conditions may be neither wise nor practicable as permanent legislation. In many respects the codes have not tended to achieve the objectives of the Act, and sufficient factual evidence is now available to separate the effective from the casual and less appropriate provisions.

Many suggestions as to future policy have been volunteered by groups and individuals of varying interests and qualifications. There has been agitation of a political nature. Industry opinion has been sought in public hearing and by questioning virtually every trade group. And meanwhile there has been a searching review and examination of every code provision within the Recovery Administration itself with a view to shaping policies as well as revising details in accord with those policies.

The three major divisions which make up practically all codes — labor, trade practice, and administrative regulations — present three problems of fundamental principle. And these principles embody the lasting direction and value of the code system.

The objectives of labor regulation are unassailable. The problem is one of method. The code system, still far from perfect, appears preferable to any of the proposed blanket legislation in that it is less arbitrary and more closely adapted to the particular conditions of an industry. That correlation can be strengthened and improved by less trading technique and the admission of greater flexibility as to hours.

The problem in regard to trade practice sections is simply whether we are ready to endorse the competitive system or abandon it in favor of trade agreements invested with the Moslem philosophy of "Conform or perish." The basic clauses abstracted from Federal Trade Commission rulings on competitive technique and the prohibition of "loss leader" tactics, are legitimate means of organizing and strengthening the ethical aspects of competition. Most of the marketing rules are a negation of competition in both production and distribution. The two can not continue together; a choice must be made.

The problem as to administration goes beyond the catch phrase of "Self-government in industry." That issue is largely met in the framing of the codes themselves and the strengthening of trade associations. In principle, if we are to have enforcement of the regulations set forth in codes, the particular enforcing agency should be of little concern. But other aspects can not be so lightly disposed of — the propriety of haling a defendant before a jury of his own competitors, the tendency to wink at certain provisions and to engage in vigorous prosecution of others, the failure to exhaust normal means of stabilization before invoking extraordinary or emergency privileges. These may alter the whole complexion of a code. We are agreed in condemning *laissez-faire* as a policy of individual action; are we to condone it in group action?

The permanent values of NRA, and the life of the Act itself, depend on the answer to these problems.

PRICES AND PURCHASING

While theorists disagree as to methods, industry must face the problem of finding the one right and fair price for its products

A SALES-MINDED executive, addressing a recent meeting of the New York Purchasing Agents Association, epitomized the typical buyer's attitude in the following sentence: "I can get it better and cheaper, and besides I don't want it anyhow."

This gibe, half humorous and half in earnest, is but one of a long series of definitions rooted in the theory that the buyer is concerned only with the price of a material or product. The purchasing agent, we are told, is a man who judges value solely by the figures on a price tag. He is a man whose concept of business begins and ends with the fact that 99 cents is less than a dollar.

No honest purchasing executive will deny for a moment that he is vitally interested in price. It is a necessary factor in every transaction, an essential part of his job. If he were to disregard this element of a purchase he would be a pretty poor buyer; he would fail to fulfill his proper function in the business plan, and would in all probability fail to remain very long in that office. To this extent there is truth in the description. But as a definition, as a statement of the unique characteristics that set the buyer apart from other classes of business men and executives, this insistence upon price-mindedness is scarcely well chosen. For it would be difficult to find any other single phase of business that is so generally and completely occupying the interest and attention of business men today as this matter of price.

Sales executives are definitely interested. Rightly or wrongly they are resigned to the theory that price competition is the only kind of competition that remains in these degenerate days of business. And that is far from a healthy situation. What time they are not desperately engaged in a collective effort to strengthen their defenses and consolidate their position against the very real dangers of ever-threatening price wars, they are clamoring within their respective organizations for favorable competitive prices that they may go out and carry on the struggle with this sole remaining weapon.

PRICE IS KING

Management is keenly interested in price. Many a board of directors has learned, like the purchasing agent, that 99 cents is less than a dollar, and that this apparently insignificant differential in income has an unexpectedly important bearing on the balance sheet. With characteristic direct action they took the issue to Washington and succeeded in writing some sort of price control, ranging from mild to rigid, into more than half of the approved codes — in contravention of that principle of economics which regards price as an effect rather than a cause. They succeeded in popularly stigmatizing a price cut as the cardinal sin of business. And in spite of some rather unfortunate experience with the operation of this theory over the past year, and the practical impossibility of its enforcement, they rallied vigorously to its defense in the policy hearings of the past month and pleaded for another year of grace.

GOVERNMENT'S INTEREST

The government is interested in price — not only by virtue of its sanctioning of these code provisions, but by definite commitment to a program that aims to restore the general price level of 1926, with fundamental readjustments of the price ratio between industrial and agricultural products; that goes beyond the former theory of price regulation for utilities, to the setting up of "yardsticks" for fair cost determinations as proven by governmental operations in allied fields; that does not hesitate to assist in achieving its end by altering monetary values in the event that quotations on the prior basis do not sufficiently respond.

In view of this situation it is far from accurate to imply that purchasing executives alone are obsessed with this problem of price. It behooves us rather to examine this matter more carefully and to establish, if possible, the principles that are involved in any general price policy, and particularly to clarify the buyer's position.

Economists in the past have recognized only two bases on which price may logically be determined. One of these is the basis of cost, plus a reasonable margin of profit. This may be regarded as the technical approach, variations being directly traceable to the influence

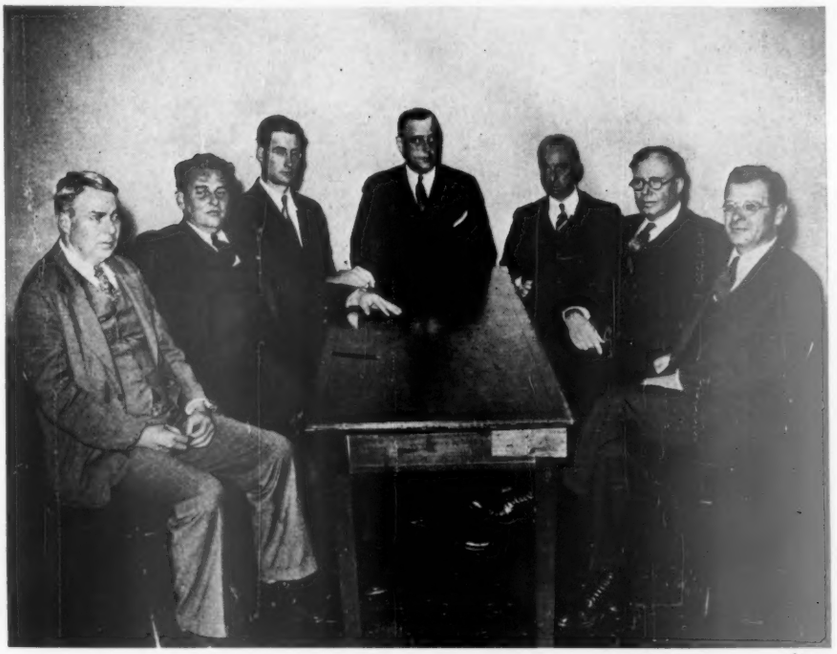
of technical efficiency in production and management, superimposed upon basic material costs, labor, and fixed charges.

PRICE BASES

The other is a price determined by "what the market will stand," which is the crude, and perhaps unkind, way of expressing the law of supply and demand, modified as it is in practice by the presence of monopolistic factors and the strength of marketing agreements. This is the economic approach. It recognizes no essential relationship between price and cost except the possible influence of the cost of some competitive product, which may be either higher or lower than that of the material in question.

To these we must add a third theory — the price fixed by governmental ruling or sanction. This is not altogether new. For some years it has been applied to the price of services offered by the utility companies in the form of transportation, light, and power — partly as a measure of protection to the public in the purchase and utilization of these conveniences of life, partly as protection to large amounts of invested capital in fields where the choice lies clearly between wasteful and needless duplication of facilities and a condition approaching monopolistic control, and partly as a compensating factor for the necessity of maintaining constantly, regularly scheduled service regardless of the daily peaks and valleys of demand.

In the great business experiment now being conducted in our country, this third plan has been cautiously applied to commodity markets, partly as a measure of conserving our natural resources and partly to protect invested capital in those markets where stocks and potential production are far in excess of current demand, and where the only other apparent recourse of industry would be the exploitation of labor. Bearing in mind these objectives, this may be characterized as the social approach to price.



Acme

PRICE MOGULS — Chairman S. Clay Williams and his National Industrial Recovery Board

BEYOND THE PRICE TAG

Purchasing men are realists. They deal in day-to-day facts. As such they have learned to adapt themselves and their buying policies to the working of economic law—particularly the law of supply and demand as determining price — and they are obliged to accept the fact of prices set by governmental action or with governmental sanction, at least so far as these are accepted by the sellers.

But purchasing men are also scientists. They penetrate the fact of price to see what lies beyond, and they have a right to learn and know upon what basic conditions those price structures are erected, what justification, either technical, economic or social, exists for a given price level.

It is fair to say that the objective of scientific purchasing, so far as material prices are concerned, is to establish some equitable relationship between cost and price. That is to say, it follows the technical theory of price as the most reasonable approach.

The earliest efforts of so-called scientific purchasing were in the nature of price analysis—a breakdown of price into the component factors of basic material costs and processing charges. It is not so very long ago that the most advanced buyers were checking up on the cost of an electric motor by computing it in terms of so many pounds of iron castings, so many pounds of insulated copper wire, and so many hours of labor in assembly. Another case in point is the standard coal contract developed by the National Association of Purchasing Agents, which recognizes the cost variable involved in the fact of wage agreements in the producing fields and permits price adjustments in proportion.

MANY EXCEPTIONS

It is a rough method at best, particularly since the computation of processing costs was necessarily a matter of estimate in most cases. Vendors, who properly considered their individual costs as their own private concern, resisted the buyer's efforts at accurate cost determination, though there were others who profited mightily through the policy of large customers, like the Ford Motor Co., to send in engineers and production experts to

show them how costs could be reduced well within the limits of an offered price.

Many of the codes developed under NRA have recognized this principle of price control by barring sales below cost. But even if we can agree on a definition of cost, there are too many exceptions to this rule to make it a workable law. There are many occasions when it is plain good business to sell below cost and where such a practice carries no implication of wilful or ruthless damage to a competitor.

Let us leave out of consideration for the moment the right of any seller, in an effort to retain his business, to meet the prices of a competitor, and confine ourselves to actual items of cost which can be allocated to a particular product or transaction.

CONTRIBUTORY COSTS

What about development cost in relation to certain processes or equipment—the background of research and experimentation, the cost of patents, the procurement of special tools and equipment, and the refining of specifications and processes through practical experience? If this were allocated to the first units, or perhaps even to the first year's output, it might readily result in a price so prohibitively high as to keep the product off the market altogether. How much better accounting to place such an item into the company's fixed charges or to follow the ordinary principles of depreciation and distribute the expense over the business life of the product. Yet this means selling below cost.

Similarly with the sales expense involved in marketing a new product or entering a new territory.

Then there is the anticipation of production economies by reason of increased volume. That volume can be fairly accurately forecast through market analysis and sales surveys. Is it to be forfeited, and those economies lost because it means, at the outset, selling below cost?

Or take the problem of by-product materials. The obstacles to world stabilization of the copper market include not only the disparity in living standards and wage schedules of the African native and the Michigan miner, but the fact of Canadian tonnage produced incidentally to the refining of other metals, resulting in copper stocks whose sale even at relatively low price levels is logically considered as so much "velvet" rather than as a paper loss.

NEW APPLICATIONS

There is still another angle: the situation that arises when a material seeks acceptance in some new application. Aluminum, for example, by virtue of its own unique characteristics, has achieved many and diversified fields of use in structural work, transportation, machinery, protective paint, household appliances, and the arts. Like other materials (notably rubber, cotton, and cellulose) it is actively and legitimately seeking an outlet for other purposes. To cite a single application—as an electrical conductor it must compete directly with copper and the price must be in accord with that competitive situation. Now the question may fairly be asked whether the cost of aluminum ingot sold for drawing into wire is not one and the same as the cost of that identical ingot when sold for structural fabrication or for the manufacture of kitchenware. Scientific purchasing says "Yes," but the fact of the price quotation shows no such uniform relationship. Shall the buyer be required to state on his order the intended purpose and ultimate use of his purchase? In this particular case, fortified by the fact of what Washington euphoniously

Continued on page 28

PRICE CONTROL IN CODES

THE extent to which price control has been admitted in the NRA Codes of Fair Competition is graphically shown in the table on the following pages, compiled by the Division of Research and Planning just prior to the public hearings of Jan. 9 to 12, when this phase of code activity was aired. The table refers only to codes directly under NRA, excluding codes jointly administered with the AAA and FACA, and also excluding the Service Trade codes whose price provisions have been stayed by Executive Order.

In drawing the line between provisions which have been included as relating to "minimum prices" and a number of other code provisions, customary usage and understanding has been relied on. The types of provisions included, for the most part, are apparent and self-explanatory. Provisions frequently considered to relate to minimum prices which have not been included are those which provide for maximum cost, quantity or trade factor discounts; minimum interest rates; basing point provisions; open price reporting provisions; resale price maintenance when imposed by the manufacturing group; and provisions prohibiting special services rendered by the seller unless "fair" or "reasonable" charges are made for them.

It is to be noted that a certain amount of duplication may appear in the tabulation, in the sense that a single code may contain, for example, a prohibition against destructive price cutting, a provision for fixing minimum prices in cases of emergency, and a prohibition against selling below cost. The classifications adopted in this analysis are not altogether mutually exclusive.

PRICE CONTROL PROVISIONS IN CODES	I FOOD	II TEXTILE	III BASIC MATERIALS	IV CHEMICALS	V EQUIPMENT	VI MANUFACTURING	VII CONSTRUCTION	VIII PUBLIC UTILITIES	IX FINANCE, GRAPHIC ARTS, AMUSEMENTS	X PROFESSIONS	XI WHOLESALE AND RETAIL	TOTAL
Total Number of Codes	27	94	83	69	158	115	21	14	15	7	74	677
I—Destructive Price Cutting Prohibited												
A. General statement without explanation or qualification	10	1	3	....	29	1	1	....	....	....	6	51
B. As set forth in Office Memorandum No. 228, Exhibit B, Section 1 (forbids "wilfully destructive price cutting" and sets up procedure for hearing and appeal to NRA where complained of)	2	2	7	....	10	15	....	1	....	....	5	42
C. As patterned after Office Memorandum No. 228 but with variations in word or minor variations in substance	4	1	1	....	3	....	....	1	....	....	6	16
II—Provision for Establishing Minimum Prices in Cases of Emergency Only												
A. As set forth in Office Memorandum of February 3, 1934 (Code Authority, subject to NRA approval, determines when an emergency exists and establishes minimum price based on lowest reasonable cost)	6	7	5	1	48	25	1	....	....	....	3	96
B. As above but with minor variations in substance	1	6	1	1	1	7	1	1	....	....	6	25
C. As set forth in Office Memorandum No. 228, Exhibit B, Section 2 (NRA declares emergency and establishes minimum price)	5	2	4	3	13	16	....	1	....	....	11	55
D. As above but with minor variations in substance	....	2	4	1	....	1	....	1	1	....	2	12
III—Power Given to Code Authority, With or Without Approval of NRA, to Establish at Any Time Minimum Prices, No Cost Basis Being Provided	....	....	2	....	1	3	....	3	2	....	1	12
IV—Prohibition Against Selling Below Cost												
A. Non-distribution codes												
1. Definition of cost												
a. Individual (Individual member's own cost)	14	57	49	44	87	75	12	2	4	4	4	352
b. Specific minimum cost set up for entire industry												
(1) Lowest reasonable	....	2	....	....	....	1	....	4	....	....	1	8
(2) Reasonable	....	2	....	1	2	3	....	....	2	....	....	10
(3) Lowest representative	....	....	3	2	2	....	....	....	....	1	....	8
(4) Average	....	....	4	....	....	1	....	....	....	....	....	5
2. Elements of cost specified												
a. Production or manufacturing costs only	....	6	5	....	4	1	....	....	....	....	....	16
b. Production and other costs	2	4	10	6	12	10	5	1	4	....	....	54
c. Specified percentage mark-up on a uniform base for overhead costs	....	....	2	1	3	4	....	....	....	....	....	10
d. Integrated producers must figure products of earlier stages at market price	....	....	6	....	....	1	....	....	....	....	....	7
e. No elements of cost specified	12	50	31	40	72	66	7	5	1	4	....	288
B. Distribution codes												
1. Definition of cost												
a. Invoice cost or cost of replacement plus transportation	....	....	2	....	....	....	....	....	....	....	28	30
b. Net purchase price	....	....	....	....	....	....	....	....	....	....	2	2
c. Wholesaler's list price	....	....	....	....	....	....	....	....	....	....	1	1
d. Manufacturer's list price	....	....	....	....	....	....	....	....	....	....	5	5
e. Mark-up for wages and other costs of doing business provided for—i.e., mark-up on "a", "b", "c" or "d" above to be determined by Code Authority with or without approval of NRA												
(1) For wages only	....	....	....	....	....	....	....	....	....	....	11	11
(2) For wages plus other costs of doing business	....	....	1	....	....	....	....	....	....	....	3	4
(3) Mark-up to be based upon cost finding, estimating, or accounting method to be determined by Code Authority with or without approval of NRA	....	....	1	....	....	....	....	1	....	....	10	12
(a) Individual cost	....	....	1	....	....	....	....	1	....	....	10	12
(b) Modal cost	....	....	....	....	....	....	....	....	....	....	1	1

PRICE CONTROL PROVISIONS IN CODES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	TOTAL
Total Number of Codes	27	94	83	69	158	115	21	14	15	7	74	677
IV C. Provision for accounting, estimating for finding methods to be used in determining costs in connection with the "no selling below cost" provisions of either "A" or "B" above												
1. To be determined by Code Authority	14	57	49	46	79	73	10	5	4	3	17	357
2. Approval of NRA required	11	50	46	42	73	70	10	5	4	2	17	330
3. Methods named in and established by Code	1	1	7	1	7	2	....	....	4	....	....	23
4. No method specified not any provision for developing one	....	3	3	....	5	3	2	2	1	1	22	42
5. Individuals permitted slight variations	2	8	4	1	28	15	2	1	1	....	4	66
6. Preliminary rules established with or without approval of NRA to apply prior to the approval of methods	4	2	6	27	1	2	4	....	3	....	....	49
D. Specific provisions for cost filing and cost investigation to be used in connection with the administration of the "no selling below cost" provisions of either "A" or "B" above												
1. Cost data must be submitted to Code Authority or Impartial Agent at its request	1	6	8	23	12	10	1	1	1	....	1	64
2. Provision for investigation by Code Authority or Impartial Agent of members' cost at any time	1	1	2	4	....	2	1	1	1	....	1	14
3. Provision for investigation by Code Authority or Impartial Agent of members' costs in cases of violation of disputes only	....	1	2	3	4	4	3	....	1	....	....	18
4. No provision for cost filing or cost investigation	12	54	41	18	77	63	9	4	2	4	35	319
V—Exceptions Permitted to Minimum Prices Established in "I", "II", "III", or "IV" Above												
A. To meet competition of other members of the industry												
1. Types of competition												
a. Any prices established by competitors	2	8	23	8	20	10	1	....	1	....	5	78
b. Prices of competitors not selling below cost	9	16	7	26	8	19	5	....	2	....	19	111
c. Prices of lower-cost competitors	3	18	11	1	24	18	....	....	1	1	1	78
2. Conditions under which competition may be met												
a. After approval of Code Authority	....	3	3	....	2	3	....	....	....	....	1	12
b. Only upon notice to Code Authority	5	2	9	1	14	17	....	....	1	....	14	63
(1) At specified time prior to meeting of competition	....	....	....	....	1	4	....	....	....	....	....	5
c. Other conditions	....	3	3	....	1	1	1	....	....	....	3	12
d. No conditions	9	36	29	35	34	31	5	....	2	2	10	193
B. When selling distressed goods and during special sales												
1. Approval of Code Authority required	3	19	11	27	32	12	....	....	....	....	12	116
2. Notice to Code Authority required	4	32	17	30	63	42	....	....	....	....	19	207
a. At specified time prior to the making of such sales	1	....	4	1	25	20	....	....	....	....	6	57
3. Other conditions	4	17	2	3	16	5	2	....	....	....	12	61
4. No conditions	1	5	4	....	4	2	....	....	....	....	5	21
C. Miscellaneous exceptions												
1. Types												
a. When introducing a new product	1	....	1	....	....	....	....	....	....	....	....	4
b. When meeting competition of certain specified and definitely competitive products	....	....	....	1	10	1	....	....	....	....	....	12
c. When selling to other members of the industry	1	....	2	1	1	5	....	....	....	....	2	12
d. When meeting competition of non-industry products	....	3	9	....	21	22	....	....	....	....	1	56
e. When fulfilling contracts made prior to effective date	....	....	3	14	2	1	....	....	2	....	5	27
f. When selling to affiliates	....	....	1	....	....	1	....	....	....	....	1	3
g. Other	1	5	....	2	3	3	....	2	1	....	6	23
2. Conditions under which permitted												
a. After approval of Code Authority	....	1	1	....	7	3	....	....	....	....	....	12
b. Only upon notice to Code Authority	1	2	4	1	12	5	....	....	....	....	1	36
(1) At specified time prior to making such sales	....	....	....	....	2	1	....	....	....	....	....	3
c. Other conditions	....	1	....	....	....	2	....	1	1	....	1	6
d. No conditions	1	3	9	15	19	15	....	1	1	....	11	75
VI—Promulgation of Cost Finding and Accounting Methods Provided For But Use as Basis for Minimum Prices Not Mandatory												
A. As set forth in Exhibit C of Office Memorandum No. 228 (Methods determined by Code Authority with approval of NRA shall be made available to members)	4	5	8	1	9	12	2	2	....	....	8	51
B. Otherwise (Methods which while mandatory upon members in respect to his own accounts are not used in connection with "no selling below cost" provisions as set forth in "IV","A" or "B" above)	3	7	5	5	42	4	2	2	1	1	3	75

GRAPHITE LUBRICATION

EDWARD ACHESON WILLSON

THE trend of modern lubrication is toward efficiency which extends not only to the efficient operation of machinery but also to the amount of lubricant that is consumed in permitting a given machine to operate in an efficient manner, as well as the cost of supplying lubrication.

There are several different forms of graphite found in many parts of the world, but the best known forms are flake graphite, amorphous graphite and manufactured graphite. Both of the first two kinds of graphite were formed through centuries of extreme heat and pressure within the earth, and by being formed in such a manner, they are mixed with minerals and other substances having the same relative specific gravity. Due to this similarity in gravity, it is impossible to obtain natural graphite in a pure state, many of the impurities being in the form of abrasives. Natural graphite has been used for many years for the lubrication of slow-moving, heavy-duty machinery, but due to its impurities it was impossible to use it for high-speed machinery or fine mechanisms. Graphite in this form also has many other uses, such as the manufacture of carbons for the conducting of electricity, crucibles used in the steel and other industries, pencils, etc.

The third form of graphite, that which is manufactured, is produced in an electric furnace at a temperature above 5000 degrees F. Due to this extreme heat, the finished product is chemically pure and is guaranteed to be 99.9 per cent pure graphite.

TREATMENT

Pure electric furnace graphite is passed through a 300 mesh screen, which is about as fine as wheat flour. Although the graphite in this state is a true lubricant, soft and unctuous in character, still the individual particles are much too large for lubrication of fine machinery. Therefore, by a patented process called deflocculation, each particle of this electric furnace graphite is split into hundreds of parts. The individual particles of colloidal graphite are molecular in size and so small that they will pass through the finest of filter papers, or even through a chamois skin. The estimated diameter of one molecule (or one colloidal particle) is 75 millimi-crones or 0.000002953 of an inch, so that it can readily be seen that it is impossible to clog oil lines, ducts or passages in any lubricating system, and will readily pass through all filters.

During the colloidalizing process of the graphite, each particle, as it reaches the colloidal state, acquires an electric charge of the same sign. As all particles which are charged with the same electric sign repel each other and those charged with opposite signs are drawn together, it is readily understood how these individual molecules of graphite are constantly agitated by being repelled from one another. This repulsion takes place in all directions and is known as the Brownian movement.

DIFFUSION

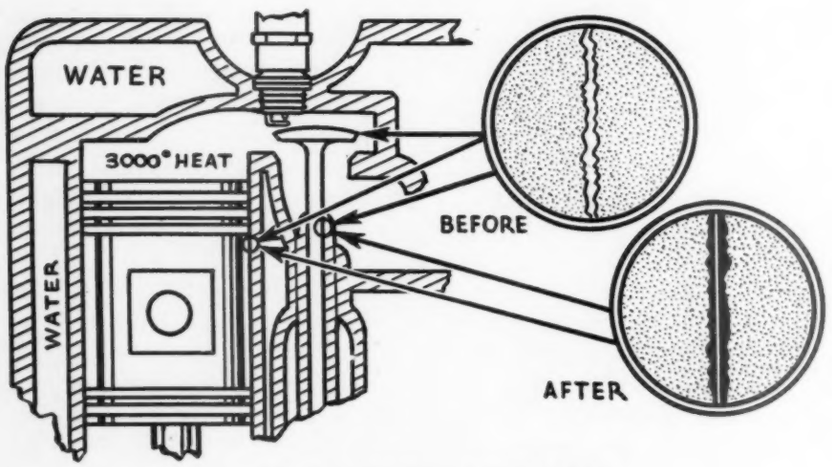
When colloidal graphite is mixed with oil, water or any other liquid medium, the repelling action causes an even diffusion of the molecules of graphite throughout the entire liquid. In other words, the colloidal graphite is not held in suspension at the top of the liquid, but is evenly distributed or diffused throughout the entire medium. In this diffused state, the colloidal graphite will go wherever the liquid will go and will penetrate the smallest crevice or follow up a wick through capillary attraction. Due to the extreme fineness of the colloidal graphite particles and the fact that they are evenly diffused in the liquid, such products have often been called graphite solutions, although the graphite does not dissolve but retains its true identity at all times.

APPLICATION

As mentioned above, graphite has been used as a lubricant for many generations. However, only since the advent of colloidal graphite has it been possible to use it for delicate, high-speed machinery. On account of the microscopic size of the

colloidal graphite particles and the fact that they have a great affinity for metal, they will attach themselves to the metal by absorption or pressure, forming a graphoid or frictionless surface, often called a breath-like film which is only one molecule in thickness. These frictionless surfaces permit the oil to spread more quickly than a plain metal surface and the graphite being a true lubricant, will efficiently lubricate even in the absence of any oil.

Proof of these frictionless surfaces formed through the use of colloidal graphite can be readily demonstrated by draining all oil from a given piece of machinery which has an established grafoid surface, then run the machine for a short length of time with no liquid lubricant present. The machine so run will not only operate efficiently but in many cases the operating temperature is lowered during this test, as there is no internal friction of the lubricant.



RESULTS OF GRAPHITE LUBRICATION

RUGGEDNESS

Friction and heat are the principal enemies of efficient operation of all machinery. Heat many times causes an oil film to break, thereby losing all of its value as a lubricant. Colloidal graphite, due to its chemical inertness, will withstand extremely high temperatures (far above those of a plain mineral oil) and as graphite also has high pressure sustaining qualities, the graphite film will not break, should the lubricant supply be temporarily cut off or a heavy overload be momentarily added.

This point has been corroborated by numerous authorities, among them E. Falz, Chief Engineer Consultant in the Imperial Institute of Economics, Germany, who states:

"Another invaluable advantage of graphite lubrication from the operating standpoint is its peculiarity of maintaining operation after the oil supply has been cut off, and without allowing overheating or wear in the bearing. This fact, which has been confirmed by exhaustive experiments, is explained by the circumstance that the coefficient of friction of steel on colloidal graphite is not much greater than that of the internal friction of a fluid, and a roughening of the graphite coated surface on a smooth shaft is not to be feared even when the pressure is very high.

"In any case, even in pure fluid friction, the shaft and bushing receive an unsurpassable polish through breaking-in with colloidal graphite; the height of the remaining irregularities is diminished to the utmost possible degree and consequently lubricating films of much slighter thickness become admissible. The result is that a bearing broken in with colloidal graphite, and which is otherwise well constructed, will support much greater loads than originally, even after going back to pure oil lubrication.

"This point is of exceptional interest. In running-in, the irregularities are reduced by diminishing the projections, and in the case of graphite, by filling up the indentations. The result is basically the same, except that far smoother surfaces are to be obtained by the use of graphite."

CONCENTRATED COLLOID

Colloidal graphited lubricants are also available in concentrated form, designed for use with a lubricating oil to supply the graphite advantages for lubrication of machinery of all types in industry, on farms, in the home, or in the crankcase of an automobile, airplane, or motor boat. The addition of such lubricant to regular mineral oil acts to establish the frictionless surfaces above mentioned which are proof against heat, cold and dilution, and which cannot be removed from the metal without excess grinding action. Such addition tends to improve the effectiveness of lubrication by:

- Forming grafoid self-lubricating surfaces.
- Lowering the normal operating temperatures.
- Minimizing wear on all moving parts.
- Decreasing frictional drag.
- Reducing vibration through properly lubricated bearings.
- Permitting easier starting of motor or machinery, even in extremely cold weather.
- Lubricating when other oils break through excessively high temperatures or when they refuse to flow at extremely low temperatures.

HIGH TEMPERATURES

Another related product is designed for use in the upper cylin-

Continued on page 27

BUSINESS BOOK OF THE MONTH

AMERICA'S CAPACITY TO CONSUME, by Maurice Leven, Harold G. Moulton, and Clark Warburton. An analysis of the flow of income arising out of productive operations and the extent of economic progress in this country from 1900 to 1929. Published by The Brookings Institution, Washington, D. C.; 272 pages. Price $3.

Economists find most of us would spend a great deal more money, if we had it

THERE has been much debate among industrialists and economists in these topheavy days of surplus stocks and idle manufacturing capacity as to whether this condition should be characterized as a state of over-production or underconsumption. Much of that debate has been fruitless and academic by reason of the fact that the two terms have been used in a purely reciprocal sense, which proves nothing further than the very obvious truism that the situation can be viewed from either side. Production is over (i.e. greater than) consumption, and by the same token consumption is under (i.e. less than) production.

A more constructive approach is contained in the theory that we have progressed from the old economies of want, under which the machinery of production and distribution was progressively developed and geared up to supply the requirements of wider markets and greater human demands, to the economics of plenty, under which these demands are satisfied without calling upon the full resources of that productive machinery. But this bald explanation is not satisfactory because it implies a simplicity that does not exist. We are faced, both internationally and nationally, with a situation of want amid plenty, which raises both a social and an economic problem of adjustment.

YARDSTICK NECESSARY

In order to read any meaning whatever into the discussion, it is necessary to find some standards against which both the volume of production and the volume of consumption can be measured. Only then can we really understand the situation and intelligently undertake the necessary adjustments. Without such standards it is perhaps possible to balance the two factors arbitrarily — by a curtailment of production or by making public funds and credit available to permit more extensive purchasing. But either of these two expedients entails grave consequences —industrial stagnation or the breakdown of national finance — unless we can be assured that some more permanent and practicable relationship will result.

A workable standard may emerge from this study made by the Brookings staff. Consumption, which is the practical expression of demand, is largely a matter of living standards. Living standards are in turn limited — at one end of the scale by the individual capacity to consume, or satiety, and at the other end of the scale by a family income insufficient to provide the full measure of desire or even necessity.

The obvious example is food. Three meals a day is the practical limit of a person's capacity to consume food, regardless of what great supply of victuals may be available or how much money he has with which to pay for them. On the other hand there are many who can afford but one meal a day, whose effective demand or actual consumption falls far short of a very real desire to consume. And in between, in infinite gradations, are those who manage to get their three meals a day, enough for subsistence but with a large degree of unfulfilled desire as to quality and variety and an occasional meal at a hotel or restaurant.

LIVING STANDARDS

When we point with pride to our relatively high national standard of living, we are dealing in terms of averages. In our philosophy of democracy and equal opportunity, we are loath to admit the class differentiation implied in the example noted above. But as a matter of fact this disparity does exist. And the gap between these two extremes is widening rather than diminishing, for even in those times when family income in the lower brackets was most rapidly increasing, income in the higher brackets was increasing more rapidly still.

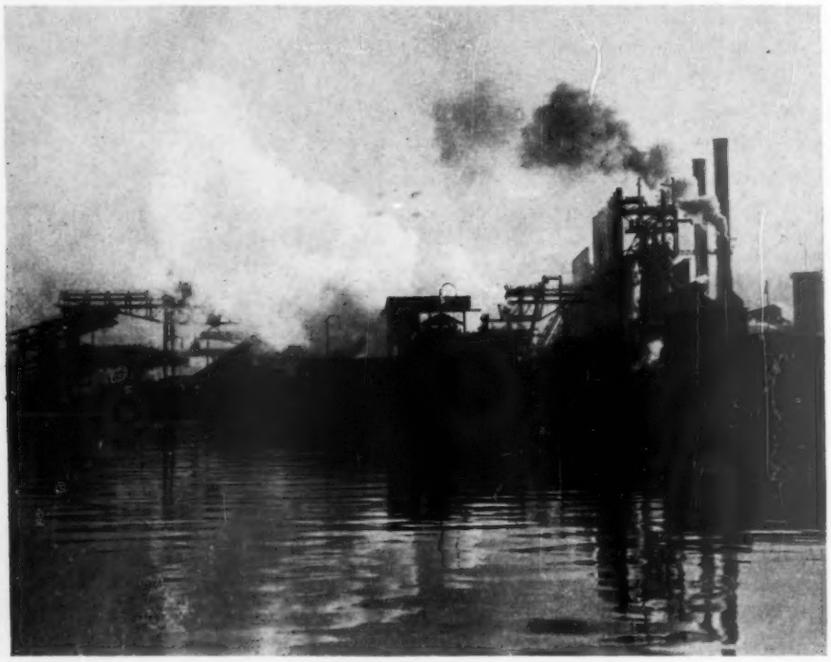
How is this situation related, scientifically, to consumption? At some time or other we all probably have toyed with the hypothetical question, "What would I do if I had a million dollars?" When that question is reduced to more practical proportions, and applied to large groups of families in specific income groups, it ceases to be pure hypothesis or speculation, and can be accurately estimated from a

study of the spending habits of such groups over a long period of years, unaffected by the present depression period.

HYPOTHETICAL SPENDING

The results of such a determination on the basis of a number of different plans for the redistribution of income among the lower brackets provide some rather startling figures. To take only one very simple case: if the 19.4 million families (of 4 persons) that had incomes of less than $2500 in 1929 were arbitrarily raised to that figure, with no change whatever in the income of more prosperous classes, their additional consumption would amount to more than 16 billion dollars annually. They would spend 4 billion dollars (40 per cent) more for food and non-alcoholic beverages; 4 billion dollars (65 per cent) more for shelter and home maintenance; about 2.5 billion dollars (65 per cent) more for attire and adornment; and about 2.5 billion dollars (115 per cent) more for other consumers' goods and services. The aggregate increase in total consumption in these major classes of production would be, respectively, 20 per cent, 21 per cent, 22 per cent and 23 per cent.

That proposal is probably impractical, because of the arbitrary nature of the advance, but a sliding scale that is closer to the realms of probability, which would not be based on any such generalization, which would not attempt either to abolish poverty on this absolute scale nor to wipe out the natural disparity in income that reflects individual ability, training and initiative, but would aim at greater proportionate advances in the lower brackets, results in a similar aggregate increase in consumption, with a slightly different distribution among classes of goods and services. Specifically, it would mean an increase of 18 per cent for food, 26 per cent for shelter, 27 per cent for attire, and 29 per cent for other goods.



Acme

WHOSE THE BLAME? — "Overproduction" or . . .

Acme

. . . "Underconsumption"

PRODUCTION HOURS

Now for the other side of the picture. Production in 1929 was less than full capacity, and more than actual consumption. But it was less than potential consumption even under then prevailing conditions. The inference that, as a nation, we were living beyond our means in those days is not supported by the facts.

Production in 1929 was based on an average industrial work week of nearly 51 hours. If the work week were shortened to 40 hours, as a means of widening employment and accomplishing a part of the improvement in income contemplated in the plans set forth above, it would require a 25 per cent increase in industrial efficiency over 1929 levels to achieve the same volume of production, which, with increased potential consumption, would fall short of satisfying that potential requirement. The 30-hour week, with complete utilization of our labor force and productive establishment, would mean even a smaller output, and the result would be to reduce consumption standards even below the unsatisfactory status of 1929.

And there is no evidence of any such technical improvement in efficiency. The last five years have not been characterized by any very general replacement of plant and machinery by new and more efficient models. In many fields such expenditure has been restricted to indispensable repairs, to the extent that deferred maintenance is one of the principal sources we now look to for increased demand. The program of modernization will take time. There are many practical forces — technical, financial, and

psychological—that emphasize this fact that there can be no overnight correction of this situation.

ENCOURAGEMENT

This is quite the most heartening news for the capital goods industries that has appeared in many months. They are an essential part of the picture as a whole. It does not necessarily mean that stimulation should start at this end, rather than from the viewpoint of the consumer, for they must be related and balanced. But it does mean that they are not yet to be relegated to the class of recessive industries, doomed to a lingering demise. They are definitely included in the cycle of increasing activity in which each factor adds impetus to the others in the process of general improvement.

The significant conclusions to be drawn from this study are that both consumption and production can be definitely correlated to determinable standards; that in the light of these standards the word "under-consumption" is accurate and "over-production" is far from the mark. In other words, this country has not reached the stage of economic development in which it is possible to produce more than the people as a whole would like to consume and which, with a proper distribution of income—not along radically socialistic lines or the fantastic and arbitrary lines of the Townsend plan or its many variations and prototypes — they may reasonably be expected to consume.

REVISED PROFIT SYSTEM

This analysis is based upon the assumption that the profit system is to endure. It has made due allowance for the maintenance of capital and the reinvestment of new capital. It does point, rather convincingly, to the necessity of a revision of the distribution of profits so as to build up purchasing power, or effective demand, along with greater production capacity, in order that each may support the other.

The study does not go to the extent of suggesting a definite plan for economic readjustment. There are already too many such proposals. It does provide a sound and exhaustive statistical foundation for testing the practicability and the probable results of those proposals. It is not light reading. But to any one who is sincerely interested in the problem of sound recovery (and this should include every thoughtful business man) it does provide a factual basis for removing his thought and planning from the realm of theory and speculation to the realm of practicability, in which social and economic considerations appear in a rational relationship, unbiased by selfish or emotional excesses.

★ ★ ★

JONES & LAMSON MACHINE CO., Springfield, Vt., in its catalog No. 34-107 describes its line of ram-type turret lathes, describing and illustrating the lathes and their details. A table of specifications is included. Equipment and accessories are also illustrated.

WESTWARD COURSE OF EMPIRE

THE geographic center of ingot capacity of the steel industry in the United States is in Crawford County, Ohio, north and west of the town of Crestline, according to a calculation made by the American Iron and Steel Institute.

Capacity for producing steel ingots by the Bessemer and open hearth processes is evenly distributed around this point, which is the center of gravity of the steel industry. The great concentration of capacity in Pennsylvania and eastern Ohio is balanced by the capacity on the Pacific Coast, some 2500 miles westward, and by the mills in the Chicago district.

Since 1874, the earliest year for which the institute finds records available, the center of the steel industry has moved steadily toward the West. Since 1913, the westward movement has been along a nearly straight line across Ohio.

This westward movement of the steel industry closely resembles a similar shift of the center of population of the country. Since 1870, the center of population has moved 190 miles to the west, from a point forty-eight miles east of Cincinnati to a location in Green County in the southwestern part of Indiana. The center of the steel industry, as reflected in ingot capacity, has shifted more rapidly by traveling westward approximately 350 miles from its location in central Pennsylvania since 1874.

WESTWARD HO!—Horace Greeley's advice is followed by the steel industry

THE NEWS

SAM, THE RAILROAD MAN

SALT LAKE CITY — Their fears of government ownership allayed somewhat by Transportation Coordinator Eastman's legislative report to the President advocating continued private operation; their hopes fanned by the same report's proposal to bring trucks, busses, airlines and water carriers under federal regulation, nervous railroaders awoke with a start one morning recently to find Uncle Sam plumb in the middle of the railroad business.

Lest the heavily mortgaged Denver & Rio Grande Western's affairs ensnare its well-to-do subsidiary, Denver & Salt Lake, the Reconstruction Finance Corp., holding 50,000 shares of Denver & Salt Lake common as collateral on a $10,763,150 loan to D. & R. G. W., unexpectedly registered said shares in its own name, thereby became owner of the Salt Lake line. Since its protege owns a lease on celebrated Moffat Tunnel (See Fig. 1) which brings in some $600,000 annually in trackage tolls from the D. & R. G. W., the RFC virtually holds the parent road in the hollow of its hand. More disturbing to railroaders was the dread of federal tentacles reaching out in the direction of the Rio Grande's owners, Missouri Pacific and Western Pacific, who in turn are interrelated to other transcontinental lines, and all of them heavily indebted to RFC.

AUTO ELECTIONS TRIP A. F. of L.

DETROIT—Aside from the Daily Newspaper Publishing Code probably no code has required the kid-glove handling of the Automobile Manufacturers Code. Nearly a year ago the government named Dr. Leo Wolman (See front cover) to head a special board, the Automobile Labor Board, to institute plant elections for determining labor's bargaining agency under Section 7A. A long series of strikes and some 1200 cases of individual discrimination occupied the Board's attention until recently, when the first election was held at Cadillac.

Under the President's agreement laid down last March elections were to determine a basis of proportional representation. The A. F. of L. long has more than cast sheep's eyes at the populous motor industry, but since the majority-rule decision in the Houde case it has been cold to proportional representation. The Cadillac election verified A. F. of L. fears and subsequent elections have aggravated them. Of 38,336 votes — 90 per cent of eligible workers — only 1847 designated affiliation with the A. F. of L. Nine-tenths of those voting registered no affiliations of any kind.

SHOES ON OTHER FEET

BOSTON — Politics makes strange bedfellows, but economies makes even stranger ones. For many months city officials and labor leaders in the thickly-settled boot and shoe centers of Massachusetts have watched with dismay the gradual departure of their chief industry for the semi-rural sections of New Hampshire and neighboring states. Wage differentials under the Boot and Shoe Code, labor and tax troubles were given as the cause. Now the city fathers, with the ardent support of labor, are clamoring for code revisions; accusing Maine and New Hampshire towns of raiding Massachusetts shoe centers, even using municipal trucks for moving their new clients.

Haverhill, Mass., with a 1930 population of 48,710, reports a loss of 56 companies, employing 5890 workers and a total annual payroll of $4,490,455.

PERMANENCY FOR COAL

WASHINGTON—Since establishment of the Bituminous Coal Code both producers and miners (See Fig. 2) have been seeking a way to make most of its provisions permanent. First move in that direction comes from the United Mine Workers of America in the form of a congressional bill from the pen of their president, John L. Lewis. The bill as now drafted declares the coal mining industry a public utility, sets up a commission to run it and authorizes said body to prescribe a code. It provides for allocation of production among the fields, permits fixing of minimum prices based on production costs in the various districts, empowers the commission to approve maximum prices submitted by district boards and provides for a $300,000,000 fund to pay for taking marginal mines out of production and setting up national bituminous reserves. A tax of 10c a ton would be assessed, 40 per cent for retirement of the $300,000,000 and 60 per cent to provide for miners displaced in the process.

Of especial interest is the fact that the bill is an outgrowth of the measure Lewis has regularly introduced in succeeding congresses and which once was chiefly a club to force union recognition. Previously held out as bait for recognition, the advantages to the industry now are written into the bill, along with collective bargaining.

REEL

SHOW IN SAN DIEGO

SAN DIEGO — Inspired by the spectacular 2-year success of Chicago's Century of Progress and anxious to vindicate itself for the failure of its first expositional venture 20 years ago, San Diego is putting the finishing touches on its California Pacific International Exposition (See Fig. 3), scheduled to open its doors to the American public and, of course, their travel budgets May 22. The exposition will run until Armistice Day and is expected by officials and backers to draw from five to 10 million visitors. Twenty-three foreign countries, plugging their respective attractions in anticipation of a revived American tourist trade, already have signed up for representation in San Diego and many large American corporations have taken space.

Beautiful 1400-acre Balboa Park and its slowly crumbling exposition buildings left over from the Panama Pacific Exposition, strangled by the World war in 1915, have been respectively prettied up and restored and additional buildings have been erected. Consistent with the location architecture is entirely Spanish Renaissance, which may provide a welcome relief for modernism-weary patrons of the Chicago Fair.

SOVIET TRADE SHIP SCUTTLED

WASHINGTON—Settlement of old debts and commercial loans were two props supporting U. S. recognition of Russia in the fall of 1933 which have proved to have little practical strength. Alexander Antonovich Troyanovsky, Soviet Ambassador to the United States, early this month trotted nimbly up the stairs of the State, War and Navy Building, disdainfully eyeing the bourgeois elevator at each turn. In Secretary of State Cordell Hull's office he delivered himself of his message from Moscow: terms of the American offer for debt settlement and credit loans were not acceptable to his government. Adding that he had been authorized to make no further proposal, he waited. Courteously Secretary Hull replied that he was sorry, then after a pause filled with Russian anticipation, added that he, too, was without a further proposal. Four minutes and 30 seconds after he had entered, the Soviet Ambassador bowed and left, disappointment in every sober line of his face. Thus crashed months of negotiations for a working agreement on U. S.-Soviet trade. (See Fig. 4) Important factor in the crash undoubtedly was France, who offered Russia cash, as against our terms of commercial credit only.

Photos by Acme

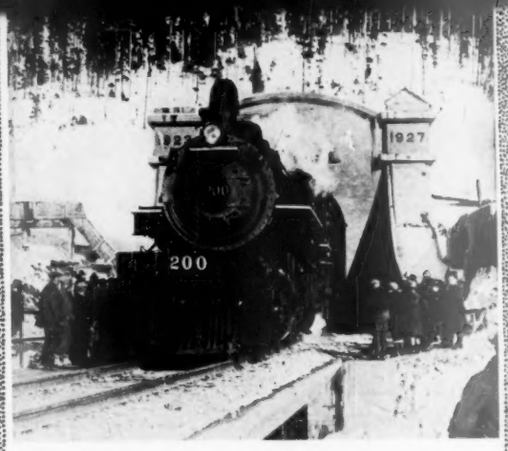


Fig. 1

Fig. 2

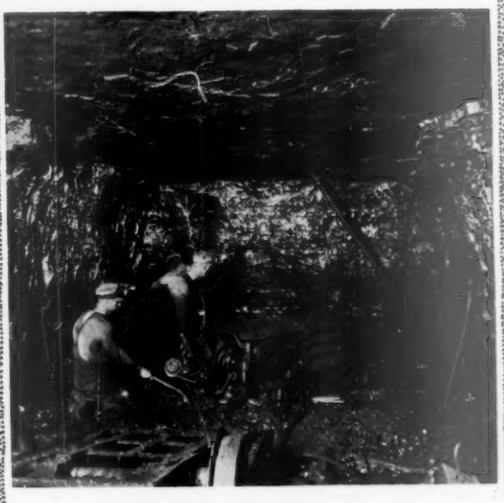


Fig. 3

Fig. 4

RECIPROCAL BUYING

IT'S an old problem and an ever present one, this matter of reciprocity. Your sales department has a prospect at the point of making a favorable decision and is convinced that an order, or the promise of an order, at the psychological moment, will tip the balance; the purchasing department is asked to do its bit for the common good. A vendor's representative learns that his company is purchasing some of your company's product, and hastens to inquire whether there isn't some item in his catalogue which you might use as a slight token of appreciation for that other business. How many times it happens that the most immediate result of a general publicity campaign is to place your name on the prospect lists of dozens of potential customers.

Probably no buyer has failed to have some one or all of these experiences. As a practical matter, most buyers have succumbed to such pressure at one time or another.

What to do?

THE director of purchases for a prominent mid-western manufacturer comments as follows:

"I am inclined to believe that most buyers have a tendency to lean over backwards on this question of reciprocity, possibly because they fear that some one will take advantage of this relationship. They view such suppliers with more suspicion than if they were total strangers. If they are up on their toes, and enter the proposition with their eyes wide open, there is no reason for that fear, and they have no one to fear but themselves.

"As purchasing men, we are accustomed to preface our pronouncements regarding policy with the qualifying phrase, 'All things being equal,' and we know even while we are saying it that all things are never equal. Personally, I accept reciprocal possibilities as one of the factors that must be considered in this inequality, just as important as freight rates, credit ratings, or anything else. As an organization man, I am willing and even eager to solidify a customer relationship or push over an additional sale even if I may have to sacrifice some other slight advantage. And if I do this deliberately, with knowledge of what I am doing, I do not consider myself a less able buyer because of the transaction.

"On various occasions I have checked over my list of suppliers and noted the number of those whom I know to be customers also. My information on this point may not have been complete, for that fact is not often called to my special attention. It is my impression that the list would not be very much different if no considerations of reciprocity were involved. If your company is a first class house and is committed to the policy of dealing with first class houses both in buying and selling, it seems to me that this is a logical conclusion. Of course you can never expect to find 100 per cent duplication of customer and vendor lists for obviously business is not simply a process of barter or exchange of products.

"As to pressure on this matter of reciprocity, I am more responsive to a suggestion from my own organization than when a visiting salesman offers it as his point of approach. I am also more receptive to the idea as a builder of good will after the customer relationship has been established. In other words, I believe reciprocity to be a better buying argument than a selling argument.

"Further, I insist that the decision be left wholly in my own hands. I am willing to go a long way in co-operation, but when I surrender my judgment in any transaction, I cease to be a buyer and become an order placer, and I am unwilling to place myself in that category.

"I also insist on considering these possible suppliers, like all others, on the basis of their qualifications as permanent sources of materials. This is elementary in good buying, and is also pertinent to the desired effect in selling, for no lasting good will can be built on a purely occasional purchase and the termination of a buying connection once established, or making it dependent on a continuation of their favors, is also unhealthy.

"The relative efficiency of reciprocal buying and a policy of complete independence can be readily determined by ordinary accounting methods. If there is any element of sacrifice involved in placing a given contract with a particular supplier (and in my experience this is not a necessary fact of reciprocal buying) it is easy to calculate. Furthermore, it can be calculated before placing the order, and it can be allocated to sales or advertising expense if that is the appropriate account."

THE EXECUTIVE PURCHASER welcomes communications from its readers commenting on this problem and presenting other viewpoints as to its solution.

THE MARKET PLACE

A summary of the month's developments in the essential phases of the basic commodity markets

COAL

SUPPLY

OUTPUT of bituminous coal in January showed a gain of substantially more than a million tons over the corresponding month of 1934, and distribution was well maintained in spite of heavy snow. The snow barrier to truck transportation has tended to concentrate sales, at least temporarily, among the larger operating properties. Industrial, railroad and utility fuel stocks are ample. Lake dock supplies and stocks in the hands of retail dealers are greater than a year ago.

DEMAND

Demand has been relatively steady, with increasing industrial purchases in the middle western area, where a greater heating load has developed in addition to the reflection of greater activity in the steel industries.

MARKET

The bituminous price situation is principally concerned with the form of price control to be adopted by or imposed upon the industry. That some such control will be in effect seems assured, whether by code, arbitration, or more permanent legislation, and one feature of such control on which all present proposals are agreed is the elimination of a distinction between spot and contract prices. Labor factors are strongly committed to a retention of price fixing to safeguard wage schedules.

COPPER

WORLD output of copper is maintained at a relatively high rate, but surplus stocks are working down gradually, the current estimate being set roughly at 4½ months supply, more than 75% of which is in the Western hemisphere. The promised international parley for curtailment of production has not yet developed. Pressure from African supplies has eased somewhat, and an increased subsidy has been asked by producers. Canadian exports are also lighter.

Domestic demand has been more satisfactory than at any time since June, 1934, and January orders totalling more than 27,000 tons have come closer to "filling the book" than for several months past. This is attributable principally to increased activity on the part of the brass makers and the automotive trade. Custom smelters have waived their full priority quotas until March 31.

The "blue eagle" price of 9c remains unchanged. It is generally anticipated that the next move will be upward, but there is no immediate prospect of such a development. The European price has been sagging in a general liquidation move attributed to financial difficulties on the part of two London commodity houses. The London market on Feb. 1 was 6.70c, c.i.f., European ports, slightly above the January low.

COTTON

QUOTAS under the Bankhead plan for 1935 provide for tax-free ginnings of 10,500,000 net bales. To this must be added some 700,000 bales now on certificates, or a total of slightly more than 11 million bales. Acreage reduction under the voluntary part of the program may amount to about 35%. Preparations for planting the new crop are reported to be less advanced than usual for this time of year. Spot offerings are sparse, but sufficient to care for the immediate demand, and slight favorable market fluctuations serve to bring additional supplies out from under cover.

There has been a noticeable lull in demand since the holidays, and mills are generally well stocked with staple. Spindle activity shows little change, and continues below expectations. Seventy per cent of such activity was in the cotton belt, 28% in New England. The average number of active hours per spindle in place in December was 195. The export situation is still unfavorable, 1934 exports being more than 2 million bales below 1933.

The cotton market fluctuated within a narrow range as in preceding months, with activity so light as to give little indication of potential strength or weakness. Price developments are largely dependent on the reactions due to the gold decision and governmental policy as to the disposition of pool cotton. Cloth markets were generally steady, with the greatest strength apparent in fine goods lines.

IRON & STEEL

SUPPLY

THE steady advance in steel operations went into its seventeenth successive week, carrying the rate well over 55%, with delivery of some items for use in the automobile industry, particularly full-finished sheets, as much as five to six weeks behind orders. Conditions in the industry are very uneven, with heavy steel districts like Philadelphia and Pittsburgh lagging at 30%, far below the general level, whereas Youngstown and Wheeling, closer to the automotive centers are operating around 90%, and Republic's Warren plant actually at better than 100% of rated capacity. January witnessed the reopening of fifteen idle pig iron furnaces, chiefly at the steelmakers' plants, where the iron will not be permitted to cool, but will be poured directly into the mixing ladles.

DEMAND

Automobile production continues as the most active customer of the steel industry, but demand is widening. Agricultural outlets are improving, both in implement manufacture and galvanized wire and roofing. Rails and track items are also in better demand and some large orders have been placed for concrete reinforcing bars. Structural steel is one major classification which has not participated in the general improvement of demand. Inquiries for pig iron have been in greatest volume from the automobile, machine tool, railroad castings and sanitary ware makers.

MARKET

The steel market, being fixed by code for the first quarter, presents no immediate change. Second quarter prices will be filed Feb. 18 and orders accepted after March 1, and an opportunity will be afforded at that time to judge how much of the current brisk demand has been for immediate use and to what extent future requirements have been anticipated. Two outside, uncontrolled markets throw some light on primary market strength. Warehouse steel prices are reported as fairly firm. Similarly, scrap metal prices are generally strong with the exception of a local condition of weakness in the Chicago district.

LUMBER

INCREASING restiveness under code restrictions since the suspension of price provisions, marked by the resignation of the Southeastern administrative agency for the hardwood divisions, indicates that production control —the second major point of the stabilization program—may also be abandoned. NRA has countered by assuming direct responsibility for code administration and the vigorous prosecution of a compliance campaign.

The expectation of a substantial revival of private home construction, which carries the chief hope of improved lumber demand, is daily growing more dim. The efforts of the Federal Housing Administration to revive the real estate mortgage market have been of little practical effect, and there is no enthusiasm among present property and mortgage owners, who believe that their own unfavorable situation would only be made worse by an extensive program of new building.

Lumber prices have shown no appreciable change. The market continues distinctly a buyers' market. Quotations on two key items on Feb. 1 show southern pine at $20.61 per thousand feet, a slight recovery from the 2-year low of $20.34 in mid-January, and oak flooring unchanged at the low of $79.50.

NAVAL STORES

WAREHOUSE stocks showed no appreciable change during January; receipts and withdrawals were both light and reasonably in balance.

Demand for turpentine was quiet throughout the month, while inquiry for rosins was relatively steady.

Turpentine prices fluctuated narrowly, showing a ½c loss as of the first of the month. The rosin market was easier.

PAPER

PRODUCTION of newsprint shows a moderate increase over last year's record. Publishers' stocks of paper are reported as unusually high in anticipation of price advances.

Buying has been active in virtually all grades. Newsprint consumption for 1935 is likely to show a gain of about 5% over 1934 due to circulation increases, particularly in Sunday editions.

The scheduled price advances for the first quarter have been largely offset by additional discounts granted by Canadian manufacturers. The New York market is firm.

SUPPLY	DEMAND	MARKET

PETROLEUM

THE major development in production during the past month has been the steady increase in contraband or "hot" oil since the ruling which made proration strictly a matter of state control without the backing of federal laws and agents. Such production has tripled in less than a month, being estimated at 38,000 barrels daily as of Feb. 1 in the East Texas field. Refinery stocks of gasoline also showed large increases for the month.

Climatic and seasonal factors now dominate the demand for petroleum products. Consumption of fuel oil registered sharp gains with the advent of low temperatures, and kerosene also shared in this demand. Meanwhile heavy snows and bad road conditions throughout the Northeast have materially curtailed the consumption of gasoline.

The market for petroleum products has been firm. Domestic heating oils have not increased in price, but fractional advances are reported in gasoline and kerosene despite large movements of East Texas gasoline recently released by the courts. The effect of this latter circumstance has thus far been local in nature, confined to a radius of trucking distance from the producing field.

RUBBER

WORLD stocks of rubber at the turn of the year were estimated at 683,000 tons. Export figures for Malaya indicate that in the period of June-December, 1934, about 88% of the permissible export allowance had actually been shipped. Since the unused balance may be carried forward in full to 1935, under the existing agreement, the restriction program is not expected to result in even a technical shortage, but will approach free market conditions. Labor disturbances in Akron, temporarily awaiting decision late in March concerning election orders issued by the National Labor Relations Board, raise the possibility of general strike conditions in this industry.

Production schedules of the tire manufacturers have been tentatively set for the first and second quarters of 1935 at approximately 10% above the corresponding figures of last year. If this rate is maintained, the U. S. consumption of rubber will be in the neighborhood of 500,000 tons, substantially higher than the previous record consumption of 472,000 tons in 1929. Tire manufacture represents approximately 80% of U. S. rubber consumption, and the proportion is likely to be even greater in view of the fact that today about 40% more crude rubber is used per tire than was the case in the tires that are now being replaced.

Rubber prices dropped sharply in January as a result of uncertainty regarding the gold decision, but recovered to a level only slightly below the previous position. Trading was generally light, with the greatest volume at the point of recession. Wage increases of 3c to 6c per hour in some Akron plants are reflected in tire costs and lend authority to the discussion of a general advance in tire prices to become effective about March 1.

TIN

SPOT supplies of tin have been relatively scarce and concentrated both in London and U. S. markets. Tin afloat, en route to this country exceeded 6000 tons for the first time in several years, with indications that all arrivals up to about Feb. 15 would be immediately applied to current orders. The world's visible supply increased 996 tons in January, to 14,694 tons.

World consumption in 1934 exceeded production by about 22,000 tons. Tin plate activity has risen to 60-65%. The U. S. Navy Department was a large customer last month, and proposals have been made to congress to accumulate supplies as a measure of national defense.

Tin quotations fluctuated last month within the range of 50.50c to 51.25c, with spot deliveries commanding a premium of about ½c over March arrivals. The market tone is firm.

ZINC

STOCKS of slab zinc have increased to a point equivalent to about four months consumption at current rates. Production now is well balanced with orders. Stocks of concentrates are low and strongly held.

Buying is generally limited to first quarter requirements. Increased activities in brass and steel are reflected in the zinc situation.

January prices held at 3.75c until the 23rd, when they dropped to 3.70c. A premium of 2½ points is asked for deliveries beyond April. No particular soft spots are reported in this market.

YOUR MONEY'S WORTH

Performance, not price, is the test of value, and values are the test of purchasing performance

WILLIAM C. TAYLOR

SCIENTIFIC purchasing is the art of getting your money's worth. Expressed in another way it is the mechanics of determining the actual value of the articles a purchasing agent buys.

By actual value is meant worth and not initial cost. If two articles have the same initial cost, give identical service, can be procured with the same ease, involve the same expense in their procurement, and are equally satisfactory in all respects, then they might be said to be of equal value. This is seldom if ever the case but is more frequently than not assumed to be true because it takes time, effort and intelligence to prove otherwise.

Take for example an electric light bulb. There are several reputable manufacturers of this article and a good many brands available. A 60 watt, 120 volt bulb can be procured in all makes. They all look about the same and are supposed to be of the same value. However when you make this purchase what you actually want is a convenient, economical device that will give a certain intensity of light, not a piece of glass and metal marked "60 watts, 120 volts."

RELATIVE VALUES

Reference to any good engineer's manual or hand book (no purchasing office should be without one) will show a formula which states that volts multiplied by amperes gives the power consumed in watts. The label on the lamp has made no claim except that when 120 volts are impressed across the terminals 60 watts of power are consumed. Transposing the above formula we find that the current flow through the filament is $\frac{60}{120}$ = ½-ampere. The label does not state how many hours it will be before the filament burns out and least of all does it state what the candlepower of the light actually delivered will be.

To go to extremes: if one lamp utilizes 90 per cent of the ½-ampere in producing light and the other 10 per cent is heat loss, and the other lamp has a heat loss of 40 per cent, then at the same price per bulb they are certainly not of equal value. Assuming that the first one cost 20c and lasted 10,000 hours, producing 60 candlepower with electricity costing 5c per kilowatt hour, the actual cost for that amount of light for that length of time is:

$$\left(10{,}000 \text{ hours} \times 60 \text{ watts} \times \frac{.05}{1000}\right) + .20 = \$30.20$$

Now it takes 1½ of the other bulbs to give the same amount of light, so that when we insert this factor of relative efficiency the calculation shows:

$$\left(\frac{10{,}000 \times 60 \times .05}{1000}\right)\left(\frac{90}{60}\right) + .00 = \$45.00$$

and your good friend who made you a present of the 60 per cent efficient bulbs still owes you $14.80, which amount will purchase 74 good bulbs at 20c each. Now a case that is highly probable is that the second is 89 per cent efficient, a difference of only 1 per cent, and we get:

$$\left(\frac{10{,}000 \times 60 \times .05}{1000}\right)\left(\frac{90}{89}\right) + .00 = \$30.337$$

and accepted as a gift it still costs you a fraction over 13c to accept it.

If you are a large user of lamps it would pay you to test a few makes with a voltmeter, ammeter and lumen indicator to determine their relative values.

PACKING MATERIALS

To illustrate further, the statement, "Packing is packing," is frequently heard in purchasing offices when a buyer is selecting a compressed asbestos sheet from the 500 odd brands available. Since these different sheets all look alike except, perhaps, for color, and since they all come from less than a score of mills, there is some excuse for the statement. There is, however, a very definite reason why they are not all alike. Some absorb moisture more readily than others, and the more they absorb the quicker they pulp and blow out.

The amount of moisture that a piece of compressed sheet will absorb is called the absorption factor, and in order to buy this article properly, this factor must be determined. Everything else being equal, I would multiply the cost per pound by the absorption factor to determine the real cost per pound. Thus if one sheet has a low absorption factor of 3 and another has a factor of 15, the first costing $1 per pound and the second only 30c per pound, I would say the first is the cheaper because

3 x $1 = $3.00, while 15 x 30c = $4.50.

OTHER FACTORS

Other properties must also be considered because the absorption factor can be decreased by overvulcanization, making the sheet too hard. It can also be decreased by increasing the rubber content, which is not desirable where temperatures will exceed 250 degrees

F. High tensile strength and high asbestos content are assets so that for a working formula we get

$$\frac{A \times R \times H}{F \times T} = \text{constant } K$$

This constant, when multiplied by the cost per pound, will give the relative cost. A is absorption factor, R is rubber content, H the Brinnell hardness, F the fiber content and T the tensile strength in thousands of pounds per square inch.

The scientific purchasing agent analyzes all purchases in this same way and gets his money's worth. It's a gigantic task but it pays rich dividends.

25 YEARS A P. A.— ARTHUR HICKCOX

ARTHUR P. HICKCOX, purchasing agent of the Scovill Mfg. Co., Waterbury, Conn., completed 25 years of service with that company on Jan. 30. Mr. Hickcox is one of the outstanding purchasing agents of New England. He is a graduate of Wesleyan University, Middletown, Conn., and has spent most of his time at Scovill in the purchasing department.

Since the founding of the Connecticut Purchasing Agents Association Mr. Hickcox has been one of its most active members. He also has been closely identified with National Association affairs, particularly in connection with the commodity groups.

Scovill Mfg. Co. is well known as one of the leading manufacturers of brass, bronze and nickel-silver, metal specialties, screw machine products and wire goods. In addition to its plant at Waterbury the company controls the Hamilton Beach Mfg. Co., Racine, Wis. (electric motors, soda fountain equipment), A. Schrader's Son, Inc., Brooklyn, N. Y. (tire valves, pressure gauges, brass fittings), and the Morency-Van Buren Mfg. Co., Sturgis, Mich. (plumbers' brass goods). Arthur P. Hickcox controls the buying policy for the entire organization.

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THE ETHICS OF PURCHASING

Successful buying does not confine itself exclusively to economic and legal considerations, but it is also involved in the broader aspects of business philosophy

B. A. FRANKLIN

EVERY art has back of it both a philosophy and a science, and purchasing, properly practised, may be said to be an art.

As to its science aspect it involves, of course, grade, quality, purity, color, strength, appearance, durability, workability, and any other characteristics which may make articles purchased most effective and valuable for the purpose and use in view.

To accomplish the desired essentials along these lines is to buy on specification or standardization, and, in very many cases, to establish testing laboratories to determine whether delivery is up to specification or standard ordered. The science of purchasing is improving in very many industries, and is particularly essential for quality and economical production, both of which make for profit.

It involves close relationship between production, technical, and purchasing departments.

PHILOSOPHY OF PRICE

As to the philosophy of purchasing, a common conception is based on the idea that the best road to profitmaking is to "buy cheap and sell dear." Perhaps this philosophy was born of (as it is largely practised by) the merchant. His problem is not one of transformation by process, but merely one of transference by sale. The art of purchasing does not entirely preclude this philosophy, of course. The purchaser will always desire to buy as economically as possible.

But, with the depression, conditions have changed considerably. The capacity to produce has outrun the capacity to consume, and this has put the purchaser in a very independent attitude. A nonchalant manner, or a hint or two of lower prices, even if non-existent, has brought concessions, and competition has enlarged these concessions.

And then, with a deepened depression, came the National Industrial Recovery Act.

Now the Recovery Act, wise or otherwise, is also based on a philosophy. Fundamentally that philosophy is a philosophy of ethics in purpose, whether its demanded practices may be considered sound or unsound. It demands, in the main, a fair deal for the worker, and it decries unfair competition. In the latter respect it touches the purchasing executive. How much is the purchasing executive involved?

MUTUALITY

Is the buyer not equally involved with the seller in the ethics of fair competition?

Possibly any consideration of the philosophy of the purchaser might start with a consideration of what his company desires, as a seller of its product.

As a seller, the company of the purchasing executive wants a price which will bring it a profit, including all of the elements of its expenditures for production, selling and distribution, plus a sum which will permit it to keep its business in a progressive and aggressive condition, and give a fair return on its investment.

In return the seller must expect to make its quality fully up to demand, to render a service of supply which shall meet the fair demands of the buyer.

Should the purchasing executive consider only the desires of his own company when he is considering buying the product of another company with certainly parallel desires?

Should the philosophy of a purchaser consider that the biblical demand "Do unto others as you would have them do unto you" has any bearing on his actions as a buyer?

Or shall the purchaser believe that *Caveat Emptor* (Let the buyer beware) is still the practised motto of the seller, and be wary?

PRICE & VOLUME

Now this philosophy of the buyer as to price is an important one for other reasons. During the depression the anxiety of the seller to keep up a reasonable volume of demand made price a big factor. The seller felt that his great appeal for business was through the cut-price method. He lacked no encouragement from the buyer in the strengthening of this belief, with the result that business generally suffered, not alone because of decreased demand, but doubly so because of the decreased return through lowered prices.

Then comes along the National Recovery Act, and, on staple goods, many codes have called for openly filed prices exchangeable between competitors. In theory no seller may sell below his latest filed prices. Nevertheless, there are frequent complaints, in Trade Asso-

ciation and Code Authority offices, that buyers state to sellers that they can buy below these filed prices. Some such complaints, where the facts can be traced down, indicate that the buyer is not stating the full facts of the case, but is merely creating a doubt in the seller's mind in the hope of developing a price weakness to his own advantage, with the lure of an order.*

LONG VIEW

Codes are laws. It is a fair question, in the philosophy of purchasing, whether such action is ethical. Or, even if the statement should be a regrettable fact, is it in the long run wise, for the good of the whole, to abet such a practice?

Many bought from the bootlegger it is true, but, fundamentally, did they respect the bootlegger? Or themselves, in their innermost consciences? Does the purchasing executive respect the price cutter, even if the latter offers him an advantage?

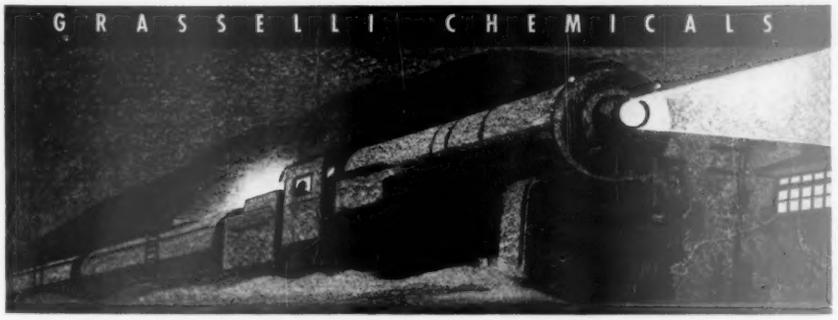
It would be a misunderstanding both of human nature and of the fair right of the purchaser to buy the supplies needed by his company for as little outlay of money as possible, quality considered, to expect that the purchaser shall go out of his way to encourage the seller in higher price quotations.

On the other hand it is only sound business for the seller to quote such prices as will make his goods most widely acceptable to buyers. This is always an advantage which the purchaser may count upon.

But possibly this broader viewpoint of the present situation may be expanded.

In most lines of goods, even before the depression, we had arrived at a state of overproduction. More capacity to produce existed than there was buying power to absorb. The depression widened the existing proportion. Then the law of

*Conversely, many purchasing agents can cite instances of surreptitious less-than-code quotations privately offered by sellers.—Ed.



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supply and demand, in its usual inexorable way, stepped in and urged competition to do its worst, which it proceeded to do to such an extent that industry found itself piling up huge deficits.

WHOSE THE BLAME?

How much of this was the fault of the seller, or how much the fault of the buyer? For after all the law of supply and demand involves mainly those two.

Continuing deficits are not an injury to capital and stockholders alone. If that were all, the greater proportion of our population, owning little of that invested capital, might have looked on with indifference, if not satisfaction; such is human nature.

But those deficits very seriously affected the whole of our people, because they increased unemployment, created lower weekly incomes for those who had work, reduced the buying power and the ability to pay promptly, and brought about low inventories.

The whole people suffered. Unprofitable business spreads its losses as widely as possible. This law is also inexorable.

SELLERS' CODES

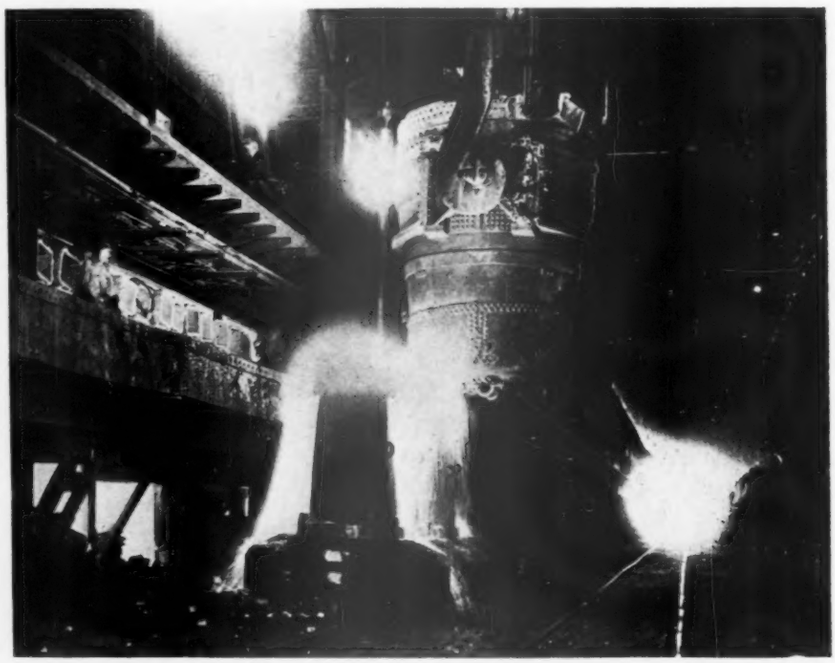
The NRA codes are, of course, the sellers' codes. They presumably are set up as ethical codes and are stated to be codes of fair practice.

But if the codes are a basis of fair practice, don't they apply equally to all involved in the transaction?

TECHNICAL PRODUCT CONTROL

TECHNICAL control of processes and products has reached such a stage of development that steel companies are now able to limit the chemical content of steel within one quarter of 1 per cent of the specifications, according to the American Iron and Steel Institute. If housewives could make cake with the same relative care, they would have to measure the ingredients by ten-thousandths of an ounce instead of by the teaspoonful, and measure their granulated sugar by the single crystal.

Yet steel making is much more complicated than cake baking. It is impossible to mix 197,306 pounds of iron, 1,330 pounds of manganese, 430 pounds of silicon, 800 pounds



Acme

of carbon, 86 pounds of phosphorus and 48 pounds of sulphur, and simply melt the mixture down to get 100 tons of steel analyzing .40 carbon, .665 manganese, .043 phosphorus, .024 sulphur, and .215 silicon.

In the early stages of melting, because of the chemical condition of the raw materials, there may be as much as 1.5 per cent carbon in the molten steel, with other elements also outside the range required for the finished product. This is gradually lowered as the metal is refined until, shortly before the heat is ready to be poured, the carbon content is actually lower than .40 per cent or whatever amount is specified. Final addition of accurately weighed amounts of ferro-alloys bring all elements within the required ranges.

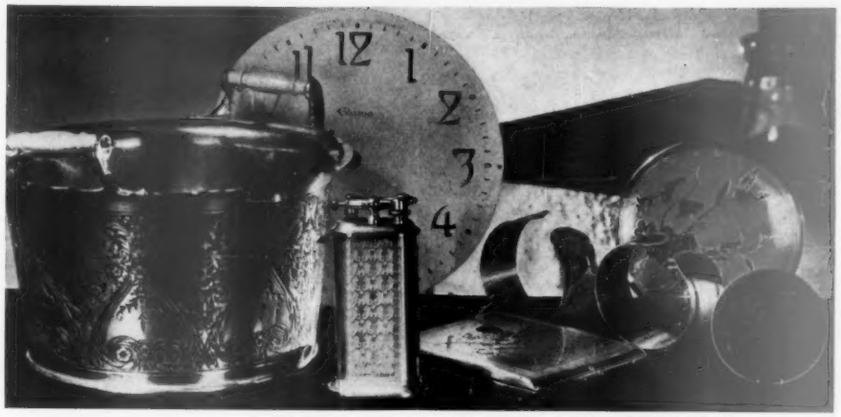
So carefully are the elements in steel controlled that, when allowable errors by the chemists are eliminated, the results of analysis show very little variation from specifications.

★ ★ ★

GRAPHITE LUBRICATION

Continued from page 12

der region of an internal combustion motor. It is also valuable as a penetrating oil for general use in factory, machine shop and home, as well as spring and chassis lubrication of a car. Upper motor lubrication is one of the most talked of developments in the lubrication industry. It is also one of the most necessary, on account of the extreme heat conditions created in the upper part of the motor due to the explosion of the gasoline. An ordinary mixing of gasoline and oil, or the adding of a plain mineral lubricant to the upper cylinder region through a lubricator, will not supply the necessary lubrication of the modern high speed, high compression cars. The normal operating temperature in the upper cylinder region is around 3000 degrees F. The best oils will burn at a temperature of 650 degrees F. Therefore, it can readily be seen



WHEN ACID IS THE "ARTIST"

NO master ever prepared his canvas with greater care than must be given to Nickel Silver for etched jewelry, novelties and the many other articles that lend themselves to this distinctive art—for acid designing requires a sheet that is even-grained and blemish-free over its entire surface. Flaws refuse the etch, and no amount of after work will conceal them.

Nothing meets this exacting demand so well as virgin alloys and an accurate control of grain structure. It is the scientific attention to these points that makes Seymour Nickel Silver so satisfactory — not only for etching but also for the drawing and spinning of shells for all fine plated ware. May we send you samples for test?

SEYMOUR NICKEL SILVER

The Seymour Mfg. Co. - 55 Franklin St. - Seymour, Conn.
SPECIALISTS IN NICKEL SILVER & PHOSPHOR BRONZE

in APPLES *or* CASTINGS

Beauty MUST BE MORE THAN SKIN DEEP

● LOOK AT this radiograph showing defective interior area in an apparently perfect carburizing retort!

● THAT'S WHY some alloy heat-resisting castings fail after a short period, while others deliver thousands of extra service hours . . . the internal structure tells the real story!

● THERMALLOY X-RAYED castings assure maximum heat corrosion and abrasion resistance.

Write for bulletin N-101

THE ELECTRO ALLOYS CO.
ELYRIA, OHIO

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X-RAYED CASTINGS FOR HEAT · CORROSION · ABRASION

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No trouble to do transfer work, or any kind of storage filing, when you use LIBERTY Storage Boxes. Any size of box you need is available, labels are already attached, labelling strips are furnished, and without tying you can semi-seal the boxes. Records are then safe from loss or damage, free from dust and mildew, always in order and ready for instant reference if needed. LIBERTY Boxes alone give every storage filing service needed — that's why they are used by more than 53,000 leading banks and business firms from coast to coast.

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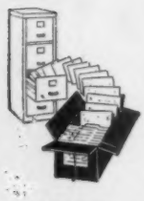

Note the nine LIBERTY Boxes illustrated. Twenty-two standard sizes — for standard office and factory forms — are available All LIBERTY Boxes are made of the highest quality, waterproofed, corrugated fibre board, strongly tape reinforced. Records are simply lifted from reference files and placed in LIBERTY Boxes.

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Why not investigate this LOWEST-COST, systematic way to handle your storage filing? The method others find best should also prove best for you. Sample box and full information sent on request — no obligation.

PIN THIS COUPON TO YOUR LETTERHEAD

BANKERS BOX COMPANY, Inc., EP-2-35
536-538 S. Clark St., Chicago, Ill.

Please send free sample LIBERTY Box and full information. It is understood there is no obligation.

I prefer size for .....

Firm .....

Address .....

Attention of .....

that plain oil will be instantly destroyed in the upper part of an internal combustion motor. Due to the extreme temperature at which graphite is formed in the electric furnace and due to its chemical inertness, the temperature reached in the upper cylinder region cannot affect the colloidal graphite lubricant.

Tests and experience indicate that the use of colloidal graphite as a lubricant will not only prolong the life of machinery, but will permit its operation in an efficient and economical manner, thereby saving many times the cost of the lubricants. Used in automobiles, for example, oil consumption has been reduced as much as 30 to 50 per cent, as there is no need of changing oil every 500 or 1000 miles, and there are corresponding savings in gasoline consumption and in avoiding repairs which would result from excessive frictional wear.

★ ★ ★

PRICES & PURCHASING

Continued from page 8

refers to as a "single source of supply," he must.

The old objective of scientific purchasing, before the picture had become so complicated, was not far from right. There ought to be a relationship between cost and price. One hesitates to use the term "cost plus" for experience indicates that the price level under the system which these words connote tends to place a premium on fictitious or at least very careless costs. Nevertheless, that is the principle toward which thoughtful purchasing men devote their effort.

Cost is difficult, perhaps even impossible, to define. But it can be resolved into its component parts, the three M's—Materials, Men, and Methods.

Materials, if we go back far enough to the forest, the mine and the quarry, have no intrinsic cost. They are the resources bestowed upon us by a beneficent Nature, and as a measure of national economy it is quite conceivable that their price may be arbitrarily set, with due regard to the costs of extracting them and making them available in useful form.

Men must not be exploited. Labor legislation and regulation is a necessary means to this end. At the recent price hearings, Administrator Whiteside declared that minimum wage provisions are a form of price fixing. That statement is not strictly accurate. They are a form of cost fixing, but the actual relationship of cost and price is highly debatable.

DECIDING FACTOR

That leaves one factor of cost open for normal competitive effort —Methods, which include both production and distribution. Is it not possible to achieve a state of competition which shall not be price competition but primarily cost competition, wherein neither labor nor natural resources shall be exploited, but technical efficiency and management skill shall be the determining elements?

Traditionally we have stated the law of supply and demand by saying that at each possible price level a certain number of producers are willing to sell and a certain number of buyers are willing to buy. As we ascend the price scale the number of willing sellers increases and the number of willing buyers diminishes. And at the point where these two groups are in equal balance, there is the market.

It should be comparatively simple to restate this in slightly different terms, to the effect that at the point where the volume of potential use or demand equals the volume that can be profitably produced, there is the fair price—the price at which the scientific purchaser should aim to buy.

★ ★ ★

"FIFTY YEARS OF MERCHANDISING" is the title of a concise, graphic and interesting brochure on the history of industry since 1885, just published by *The Printers' Inks*, New York.

"QUOTATION MARKS"

"IT is inconceivable that there can be any order in the transportation world, or any progress toward rational coordination until we adopt a policy of equal treatment before the law — a policy which will subject all competing transportation agencies to the same character of regulation, the same basis of taxation, and the same degree of subsidy. Furthermore, if we are to have equality of treatment leading to orderly coordination, we must entrust to the same body the task of regulating all these competitive agencies."

—*R. V. Fletcher,* general counsel, Association of American Railroads.

"IF a business, because of weather conditions or other natural causes must be seasonal, the fact must be accepted. But if a business which has grown up into a seasonal character can be transformed into practically continuous operation, there is a clear need for planning and cooperation; and it should not require government compulsion or control to bring about that result."

—*Donald R. Richberg,* executive director, National Emergency Council, at a meeting of the National Automobile Dealers Association.

"IT is now established beyond reasonable doubt that the United States is deficient in many minerals necessary for industry, both in respect to present and to future requirements; that for others the supply is limited to a few decades; that, aside from the building materials, only a few of the minerals such as coal and iron exist in quantities sufficient to supply the nation for 100 years or more, and even these are more limited in regard to the higher grade reserves."

—Report of the National Resources Board.

"THE road of economic isolation leads to a dismal prospect for the South and for the port cities of the nation. The city of New Orleans lives by foreign trade. Sixty-nine cents of every dollar of new capital that comes to the port is derived from such trade."

—*Ben J. Williams,*
Pape, Williams & Co.,
cotton exporters.

"PRICE-FIXING through codes is on its way out except perhaps in the natural resource industries, particularly coal and oil. The practice will not remain because it does not work."

—*Chester C. Davis,*
administrator, A.A.A.

"IF the open, one price, firm price policy has proven itself a sound practice in retail trade, it should be practicable in all other industries. Prices should be known definitely to all competitors through their source, instead of through buyers whose statements may or may not be accurate."

—*Herman H. Lind,*
general manager, Machine Tool Builders Association.

"THIS is likely to be the last great depression which will be allowed to run its course. The next one will end in revolution—Fascist or Communist. Revolution is not unknown to American life. We began our national existence with a revolution, and over an economic issue which we could not peaceably solve, we waged a bloody civil war. Wise economic leadership on the part of American business and industry — a quality of leadership which they have not so far displayed — may avert such a tragic eventuality."

Rabbi A. H. Silver,
Cleveland.

TO SEND

AIR EXPRESS
SHIPMENTS

1. Make up packages the same as for rail shipment.
2. Telephone Air Express Division of the *Railway Express Agency*, or call a Western Union messenger.
3. Door-to-door pickup and special delivery in principal cities at no extra cost. Packages are sent via *first* departure on *fastest* schedule, air or air-rail to any point in the United States.
4. Air express travels at a speed of 2300 miles overnight! Practically all types of merchandise accepted—*C. O. D., Prepaid or Collect.*

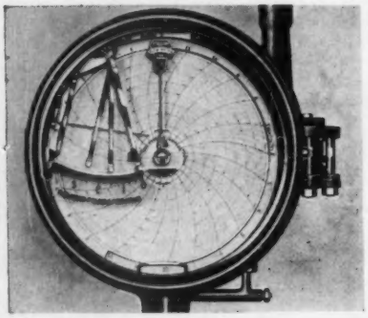
Flown in 3-mile-a-minute multi-motored passenger planes of United Air Lines and other lines.

For Local Schedules and New Low Rates *Telephone*

Air Express Div. of the Railway Express Agency
(*or call* Western Union)

Add a new word to your telegraph code: AIRYX. Means "Ship by Air Express, Div. Railway Express Agency".

NEW PRODUCTS & IDEAS



UNIVERSAL FLUID METER

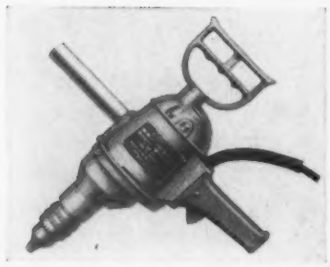
No. 36

UNIVERSAL meter designed to measure any fluid under any industrial condition is the latest addition to the line of meters manufactured by a Massachusetts company. This meter, it is claimed, enables you to get the type of meter that meets your requirements without paying for special design. If, for instance, you require merely a simple recording meter you can use a universal meter. On the other hand, should your conditions demand pressure compensation or correlated temperature, pressure, and flow records, you can get these also in a universal meter.

This new measuring instrument has a flow range of ten to one. Thus, in one instrument, the rangeability advantages of two separate meters have been combined. Where it is necessary or desirable, temperature and pressure records may be recorded on the same chart with the flow. When a multiple-pen recorder is furnished, all pens move about the same center of rotation and will not interfere with each other at any point in their travel.

The meter is for measuring steam, oil, air, water, gas, acids or any other fluid under any industrial condition.

See coupon below



PORTABLE POWER DRILL

No. 37

A NEW ½" standard duty portable electric drill has just been announced by a Michigan manufacturer of fractional horse power motors and electrical appliances. This new drill has power, proper speed, light in weight, durable, compact, and the manufacturer says that it is mechanically and electrically correct. Specifications of this drill are as follows:

Motor—universal for direct or alternating current 110-120 volts.
Housing—aluminum alloy.
Overall length—16½ in.; net weight 14 lbs.
Bearings—armature and spindle thrust high grade ball.
Speed no load—420 R. P. M.
Gears—special alloy heat treated.
Brushes—accessible from outside.

It has the breast plate type handle with detachable pipe handle; trigger type switch with lock for continuous operation, and comes equipped with 12 feet heavy duty rubber covered cord with rubber plug.

See coupon below

SMALL SIZE "C" CLAMPS

No. 38

TO meet a demand for small "C" clamps of a quality that offer assurance of satisfactory industrial and shop service and that may still be purchased at very low cost, a line of "Pony" clamps has been developed by a Chicago concern.

The frames are of refined malleable iron which does not break even though it can be bent under extreme conditions. The design is such as to afford structural strength without excess weight. They are protected from rust by cadmium plating. Screws are of steel with deep accurate threads ¼" U. S. Std.

THE EXECUTIVE PURCHASER
623 E. St. Clair Ave.
Cleveland, Ohio

Please send complete data on the New Products listed by number below:

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Company .....
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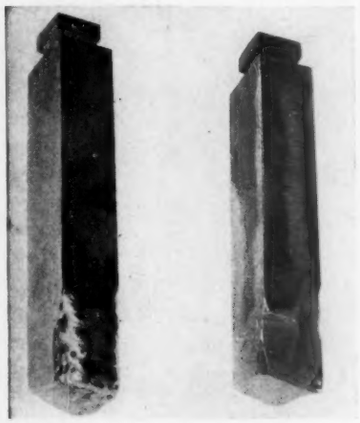
The swivel is turned steel with only a small hole in the face, securely riveted to the screw and turning freely. The screw is headed deeply behind the face of the swivel, so it will not mar the work. A loose pin handle provides ample leverage for a tight grip without necessity for using pliers and yet can be turned up in close quarters. Can also be supplied with knurled head, drilled but without handle at same cost.

See coupon on preceding page



TOOL WELDING ELECTRODE

No. 39

AN arc welding electrode which is designed for restoring worn cutting edges on tools of all kinds and which is said to permit savings of 20 to 25 per cent in tool cost is announced by a mid-west manufacturer.

The new electrode is the product of several years of research and of particular value to all industries using tools. By using this electrode, lathe tools, bits, milling cutters, drills, cutting and forming dies and all other tools which have become worn in service can be given a new and harder cutting edge than has heretofore been possible. Tools can be refaced an unlimited number of times with this electrode.

See coupon on preceding page

EQUALIZING AIR HOSE

No. 40

NEW air hose, possessing to an increased extent the advantages of both wrapped duck and braided hose with none of their weaknesses, has just been announced by a New Jersey maker.

In the new construction, for which patents have been applied, the unequal ply stresses set up in the

Mr. Purchasing Agent

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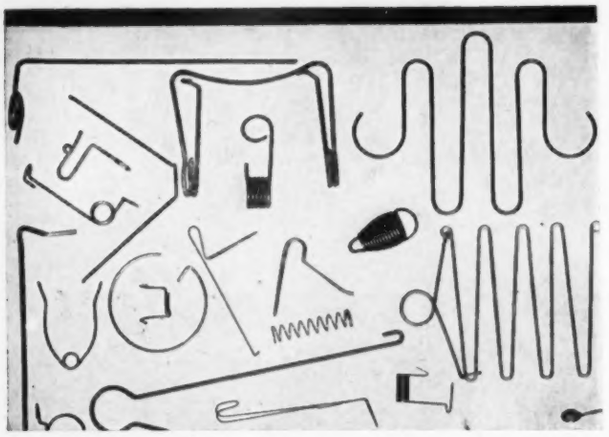


A GROUP OF INTRICATE BENDS

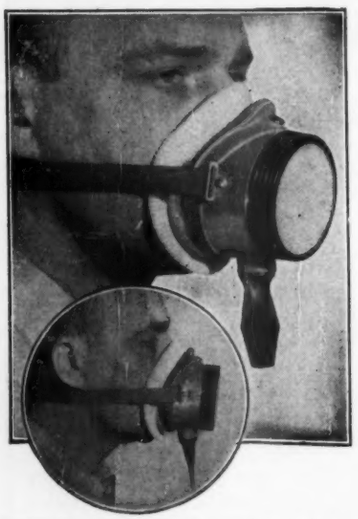
DON'T take bends for granted. They are as vital as the spring itself. If they fail to fit properly, work smoothly or carry the load, the whole spring is useless.

Knowledge of what wire will do under varying flexures accounts for the durability of Peck Springs and the accuracy with which they assemble. Send for catalog for your files.

THE PECK SPRING CO., PLAINVILLE, CONN.

PECK SPRINGS

FIGHT *these* BREATHING HAZARDS



"M" Respirator for Dusts—Spray Mists

Dusts — Fumes — Gases — Smoke — Spray Mists

Dangerous atmospheres are a major industrial health problem. In dusty conditions or paint spray mists, give workers Pulmosan "M" Type Respirators for safe, comfortable protection. If the danger is from fumes, gases or smoke, overcome it with a respirator from the Pulmosan line of more than 30 types. Write for recommendations, naming your conditions. Ask for Bulletin No. 9 and literature on entire respirator line. Pulmosan Safety Equipment Corporation . . . 176 Johnson Street . . . Brooklyn, New York.

PULMOSAN RESPIRATORS

Dust — Fume

Gas — Smoke

wall of the hose by longitudinal and lateral tensions incident with operation, are compensated and made equal. This is accomplished solely within the unique construction, which consists of two strength members, a braided cord member for longitudinal stresses and a spiralled strength member for expansion and lateral stresses, both welded in tough age-resisting rubber.

By this balanced construction, internal friction and chafing are eliminated; it effectively resists surge and pulsation. Maker states it is so strong that present-day working pressures may be completely disregarded.

See coupon page 30

★ ★ ★

BISSETT STEEL REORGANIZES

THE Tungsten Carbide die, tool and specialty department of the Bissett Steel Co., Cleveland, has been reorganized and henceforth will be operated as a separate corporation under the name of Tungsten Electric Corp., Bissett Steel Division.

A branch manufacturing plant has been built in Chicago and is now in operation, and additional branches will be built later in other cities requiring local manufacturing service. The Bissett Steel branch warehouse in Cincinnati will be used for the present as the Cincinnati headquarters of the new corporation.

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ROADS

That "all roads lead to Rome" was literally a fact at one time. It is not surprising though, considering that the Romans were the only ones who went in for roadbuilding.

And not so many years ago it was generally conceded that "all orders come from the Big Boss." Industry was young, personnel small and only the Big Boss had the authority to release an order.

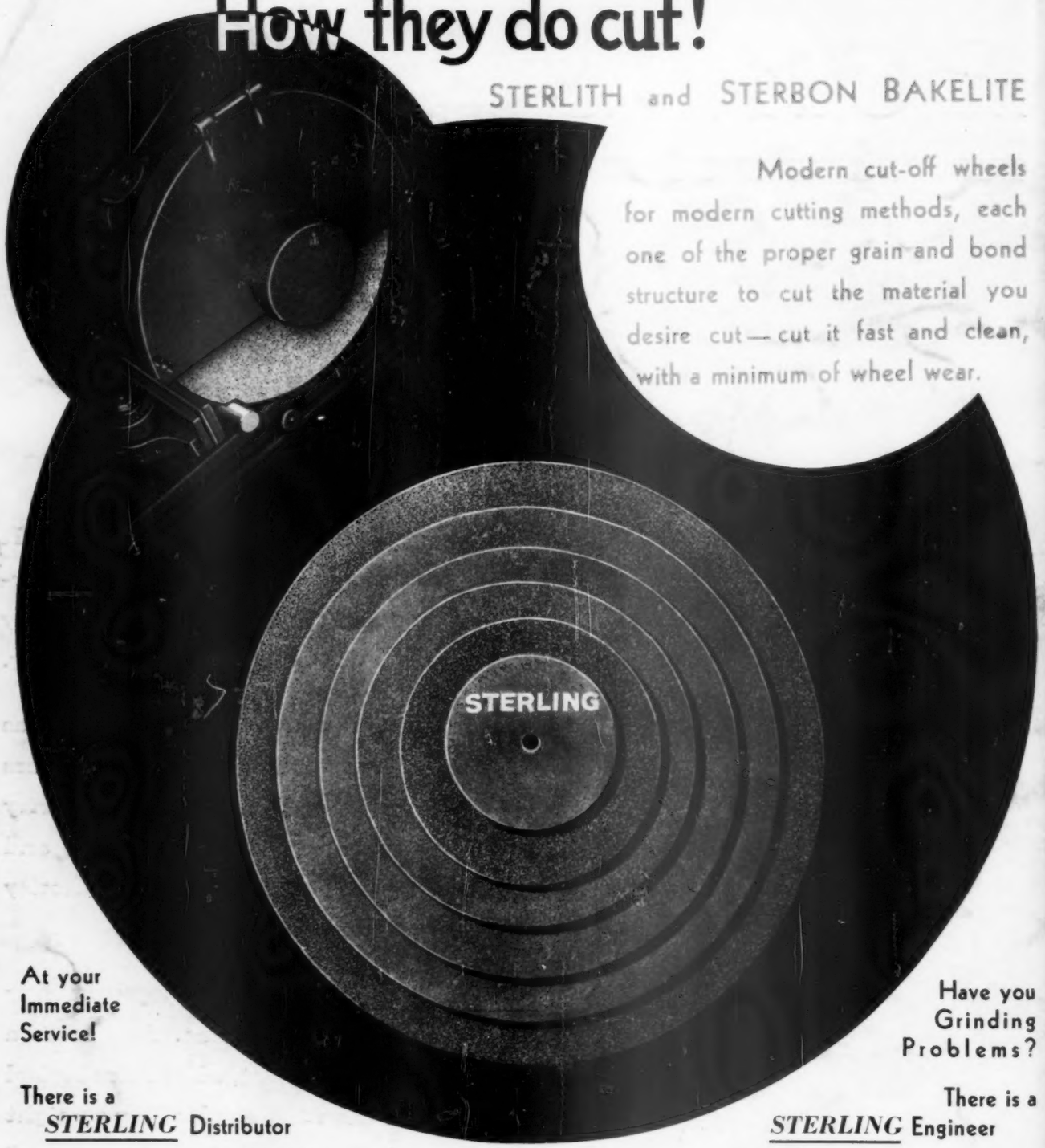
Roads today lead to a great many places besides Rome. And from a sales standpoint, what more logical road than the one leading straight to the man who does the buying?

The Executive
PURCHASER
623 EAST ST. CLAIR AVE. CLEVELAND, OHIO

How they do cut!

STERLITH and STERBON BAKELITE

Modern cut-off wheels for modern cutting methods, each one of the proper grain and bond structure to cut the material you desire cut — cut it fast and clean, with a minimum of wheel wear.



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